

**PC**  
**MAGAZINE**

# 2014 BEST OF THE YEAR



**PLUS!!**  
HOLIDAY  
TECH  
GUIDE

**DIGITAL EDITION**  
**DECEMBER 2014**







## BEST OF THE YEAR

From PCs, phones, and tablets to HDTVs, wearables, and beyond, tech in 2014 covered more—and more exciting—ground than ever before.

**Desktops**  
**Laptops**  
**Peripherals & Components**  
**Storage**

**Software & Internet**  
**Mobile Apps**  
**Security**

**Printers**  
**Scanners**  
**Projectors**  
**Networking**

**Tablets**  
**Ebook Readers**  
**Mobile Devices**

**Cameras**  
**HDTVs & Home Theater**  
**Audio**

**Gaming**  
**Digital Health & Fitness**  
**Wearables**  
**Digital Home**



# REVIEWS

## CONSUMER ELECTRONICS

**Basis Peak**

**Amazon Kindle Voyage**

**Google Nexus 6  
(Unlocked, 32GB)**

**Apple iPad Air 2**

Google Nexus 6



## HARDWARE

**Lenovo Yoga 3 Pro**

**Dell XPS 18 (1820)**

**Apple Mac mini**

**Lenovo ThinkPad W540**

## SOFTWARE & APPS

**Adobe Premiere Elements 13**

**Our Favorite Apps for  
December**

Apple Mac mini



Lenovo ThinkPad W540





## WHAT'S NEW NOW



### DARPA CREATES FIRST 1THZ COMPUTER CHIP

The world's fastest chip could usher in amazing new scanner and networking technologies.

### FREESCALE TAKES THE IOT ON THE ROAD

A new touring truck is showing off the vast possibilities of the Internet of Things.

### AN AMBULANCE DRONE, FOR HEALTH CARE ON THE FLY

A new style of drone just might save you from a heart attack.

### LAUNCH WINDOW





# OPINIONS

**DAN COSTA**

First Word

**JAMIE LENDINO**

Why Music Should Not Be Free

**WILL GREENWALD**

Plasma HDTVs Are Dead

**TIM BAJARIN**

How Tiny Tech Firms Are  
Disrupting the Giants

“

Ask the 'Net  
about anything  
and you're  
flying blind.

”

**JOHN C. DVORAK**

Last Word

## HOLIDAY GUIDE

**10 HOLIDAY TECH  
GIFTS FOR LESS  
THAN \$100**

**SPLURGE-WORTHY  
GIFTS**

**GREAT GADGET  
IDEAS FOR MEN  
AND WOMEN**

**APPS TO HELP YOU  
SURVIVE HOLIDAY  
TRAVEL**

**TECH ETIQUETTE**

Tidings of Tech Tips for  
the Holidays







## My Favorite Year

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**T**he issue you hold in your hands is our Best of the Year. It's also one of my favorites. Pulling together a list of the best products is pretty standard fare; everybody does it. But I think it's safe to say that nobody does it like *PC Magazine*.

To get to this list, we've tested more than 2,000 products and services this year. The vast majority of this occurs at our lab in New York City, where we run our tests and live with each product for a while before we send it back to the vendor.

Laptops, smartphones, printers, digital cameras, Web hosting services, wearables—everything that defines our digital lives we test against its competition and rate. But this issue gives us the chance to step back and examine what 12 months of innovation really looks like. The list is full of exceptional products, but here are a few standouts.

A ton of smartwatches were released this year—Samsung alone came out with three. And yet the best product in the category remains one of the first to hit the market. If the original Pebble was ahead of its time, the Pebble Steel was right on time. Not only does it nail notifications—arguably the killer app for smartwatches—it also manages to look good doing it. The Pebble Steel looks like a watch you'd want to wear, something no other smartwatch has managed so far.

The fitness tracker market has also had a booming year, but the recently released Basis Peak stands above the rest. Basis has a history of pushing the limits of what a fitness tracker can do, and the Peak continues the trend. The addition of



a heart rate monitor is a big plus, but just as important is the ability to passively track your movements. If you're in the market for a fitness tracker, you can't do better than the Peak.

Finally, I want to call out one of the cheapest and most overlooked products in this list: the Kingston DataTraveler microDuo. It's just a USB key, not unlike the dozen you have in your desk drawer right now. But it's 32GB of storage for \$30! That would have been inconceivable just a few years ago. Now we stick it in a list like this and no one notices it.

I could go on, but the rest of the list speaks for itself. It took the *PC Magazine* staff 12 months to pull this issue this together.

Now we have to get started on the 2015 list.

A handwritten signature in black ink, appearing to read 'Dan Costa', with a stylized, flowing script.

[dan\\_costa@pcmag.com](mailto:dan_costa@pcmag.com)



# What's New Now

**DARPA CREATES FIRST  
1THZ COMPUTER CHIP**

**FREESCALE TAKES  
THE IOT ON THE ROAD**

**AN AMBULANCE DRONE, FOR  
HEALTH CARE ON THE FLY**

**LAUNCH WINDOW**



# DARPA Creates First 1THz Computer Chip

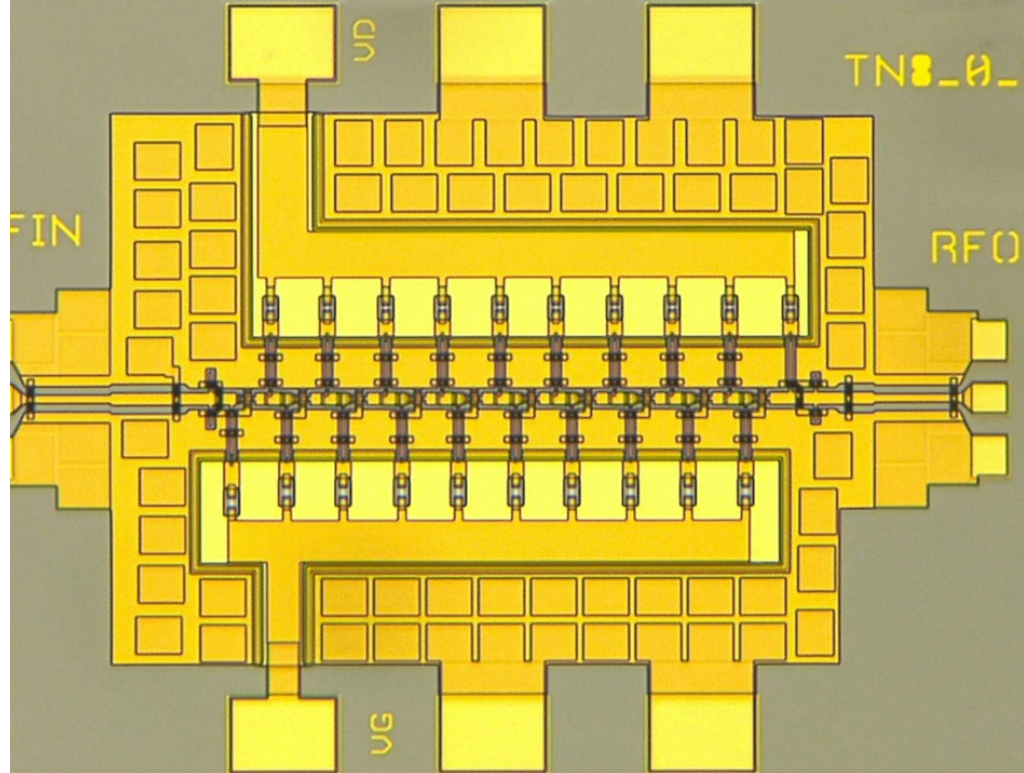
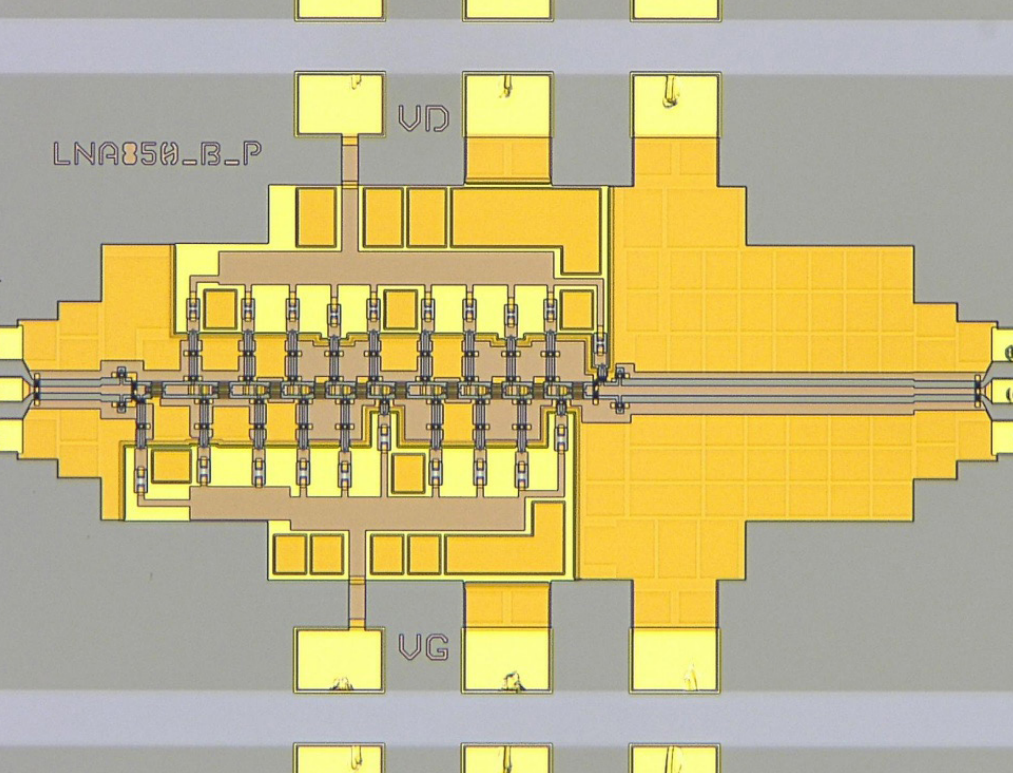
BY SEBASTIAN ANTHONY



**D**ARPA, the United States military's R&D division, has been awarded a Guinness World Record for creating the world's fastest solid-state chip, clocked at 1THz (or 1,000GHz). Computers and radio systems that operate up in the terahertz range have some powerful potential, from the creation of handheld tricorders and security scanners through to wireless networks that are hundreds of times faster than 2.4 and 5GHz Wi-Fi.

DARPA has been interested in terahertz chips for a long while now—not so much for super-fast computers as for creating radio waves in the sub-millimeter-wave terahertz range. These waves (aka T-rays), as far as the military is concerned, are a prime way of supercharging everything from radar to imaging and reconnaissance and even ultra-high-bandwidth wireless networks. Basically, because the wavelength of T-rays is so short (less than a millimeter), the rays can provide much higher resolution than, say,





conventional radar, which uses frequencies with wavelengths measuring anywhere from a few centimeters to 100 meters. The density of T-rays makes them good for carrying large amounts of data, too—and, as an added bonus, they’re good at safely penetrating a few millimeters of skin. (Yes, airports are interested in terahertz security scanners.)

As you can imagine, though, it’s hard to build a chip that’s capable of switching on and off one trillion times per second. That seems to be the main breakthrough here: DARPA, working with Northrop Grumman, has built a ten-stage monolithic amplifier using fairly standard CMOS processes. Exact details aren’t yet available, but it seems plausible that the chip could be fabricated out of indium phosphide, which is capable of switching at much higher frequencies (and at higher power levels) than common semiconductors.

The DARPA/Northop chip reportedly has excellent properties, with a gain of 9dB at 1THz, and 10dB at 1.03THz. “Gains of six decibels or more start to move this research from the laboratory bench to practical applications—nine decibels of gain is unheard of at terahertz frequencies,” says Dev Palmer, DARPA’s THz Electronics program manager. “This opens up new possibilities for building terahertz radio circuits.”

A solid-state amplifier is just one piece of the puzzle, of course. To actually create usable T-rays, you need a complete transceiver and antenna—and I don’t think DARPA is quite there yet. Still, the creation of transistors that are capable of switching at 1THz is exciting. This doesn’t mean that you’re going to magically start seeing computers that operate in the 1THz range—the power requirements and heat dissipation would be utterly insane—but we can at least begin to sketch a roadmap toward a future where everything, from computers and networks to surveillance and medical imaging, is supercharged well beyond what is currently possible.



# Freescal Takes the IoT on the Road

BY DAMON POETER



**F**reescale Semiconductor wants to bring the Internet of Things (IoT) to a truck stop near you.

The semiconductor firm has embraced the IoT with both hands, promoting its digital signal processors, microcontrollers, sensors, and other integrated circuits (ICs) as perfect fits for the burgeoning market for wearables, smart home devices, automotive applications, and the networking systems connecting all of that tech to itself and to the cloud.

To that end, Freescale has collected its best IoT and wearable reference designs, future tech visions, and integrated IoT systems in a custom-built, 40-ton big rig trailer dubbed the Internet of Tomorrow truck. The rolling technology workshop and marketing vehicle debuted at ARM's TechCon developer conference in early October.



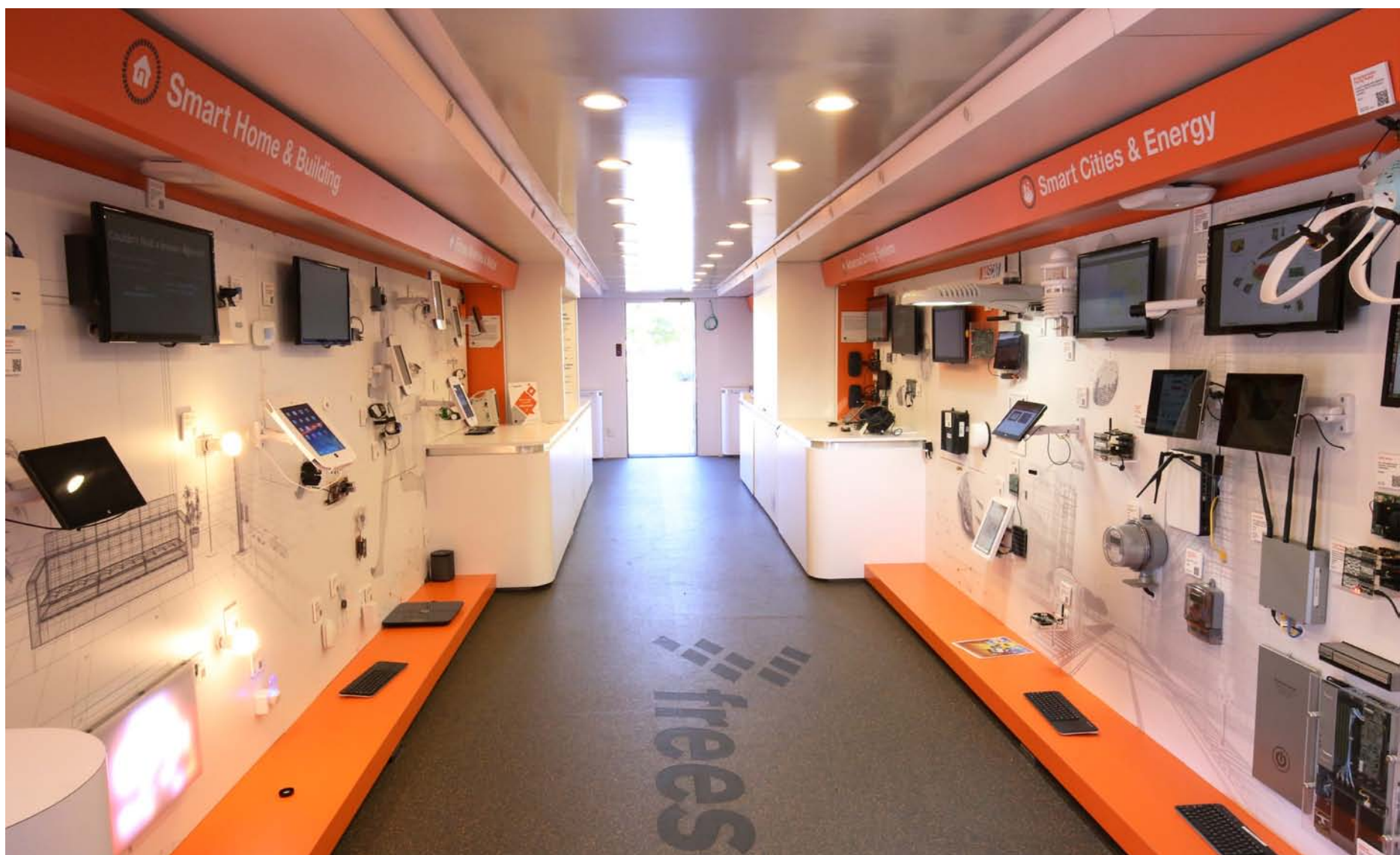
Freescale, spun off from Motorola in 2003, still designs ICs using its own proprietary microarchitecture and processor designs. Many of those chips are part of the company's growing portfolio of IoT, Software Defined Networking (SDN), and Advanced Driver Assistance Systems (ADAS) products, but Freescale, like so many other semiconductor firms these days, is also heavily investing in licensed ARM-based chip designs.

"ARM technology is central to the IoT, and this year's ARM TechCon event is the ideal venue to launch the Freescale Internet of Tomorrow Tour," said Freescale director of marketing John Dixon, who led journalists on the tour of the trailer at the conference. "This innovative program is all about traveling to and working with designers and engineers from around the world to help them turn their IoT visions into reality."

*PC Magazine* had a chance to tour the trailer at the TechCon exhibition hall in the Santa Clara Convention Center, the first stop on a year-long IoT roadshow to 100 customer sites, 20 universities, and more than 30 on-site training sessions and local tech events in the Western United States. After that, Freescale plans on hitting states east of the Mississippi, probably kicking off late next year and lasting through 2016.

## A MOVABLE IOT FEAST

The well-lit, air-conditioned trailer houses more than 120 IoT products and technology demonstrations in a training lab that can accommodate 15 people at





a time. There's also a connected kitchen and a narrow second-floor conference room for showing slide decks pumping up IoT growth opportunities to visitors after they've poked around the training lab on the first level.

Server hubs controlling everything from the climate in the trailer to the connected IoT devices lining its walls are positioned between the kitchen space and the meeting room.

The Internet of Tomorrow trailer was retrofitted by Freescale to connect, power, and display IoT devices and demos organized in categories like “Fitness Wearables & Medical,” “Advanced Driving Systems,” and “Smart Home & Building.” The idea, Dixon said, was to showcase “everything from the smallest microcontroller to the most complex network.”

Another trend Freescale is embracing is the Maker movement. A whole section of the Internet of Tomorrow training lab—in fact, the first one you encounter after entering from the back end of the trailer—is a showcase of DIY toolkits and low-cost components for bashing together IoT devices on the cheap.

Freescale engineers are on hand to guide small tour groups—it's a tight squeeze in the trailer, after all—along with reps from partners like Arrow Electronics, Green Hills Software, Linear Technology, and Digi-Key, which helped to build the exhibit and outfitted it with their own products.

**KEEP ON TRUCKIN'**  
The Internet of Tomorrow truck displays many next-generation Internet of Things (IoT) devices and technologies Freescale expects to make a major impact in the future.







When it's on the road, the Internet of Tomorrow trailer has the dimensions of a standard big rig trailer. But when it's parked, the roof is raised to accommodate the high-ceilinged kitchen, the second story, and staircases leading all the way up to a rooftop space that's ideal for lifting a beer cooled in the kitchen's high-tech, cloud-connected keg refrigerator.

The kitchen has another fascinating bit of Freescale-developed technology sitting on a counter next to its working sink: a microwave oven using durable, solid-state radio frequency (RF) transistors to heat up food more evenly and reliably than the magnetron-based microwaves we've been using for decades.

Freescale believes these products will do nothing less than usher in "a new cooking paradigm." What better place to showcase such tech than amid a bevy of future-generation products that also promise to revolutionize our world?

## **MATCHING THE HYPE WITH REALITY**

But is the Internet of Things really poised to change everything in the next few years, as IoT enthusiasts claim? Will we soon live in a world where billions of ordinary, dumb objects have been granted network-connected intelligence and hooked up to even smarter data analytics systems in the cloud, even as privacy and security concerns about such developments are somehow assuaged?

As with any trend that bursts onto the scene accompanied with gushing optimism, there's been some backlash to the buzz surrounding the IoT. And though technology suppliers like Freescale play up the projections showing explosive growth for the market over the next five years, their potential customers can be wary about the message that they'd better develop an IoT strategy—or else.

For example, a recent survey conducted by CompTIA found that almost 50 percent of IT executives consider the IoT to be "over-hyped," and a poll of SMBs in the U.S. and U.K. by AVG Technologies found that 71 percent of respondents



felt they would need to strengthen their data security due to the addition of IoT devices on their networks.

Other numbers being projected by industry researchers point to a tech trend that's only going to grow stronger, however.

IHS Technology, for example, predicted in an October report that the market for sensors used in wearable technology is set to grow sevenfold over the next five years. The "worldwide market for sensors in wearables will expand to 466 million units in 2019, up from 67 million in 2013," the report stated.

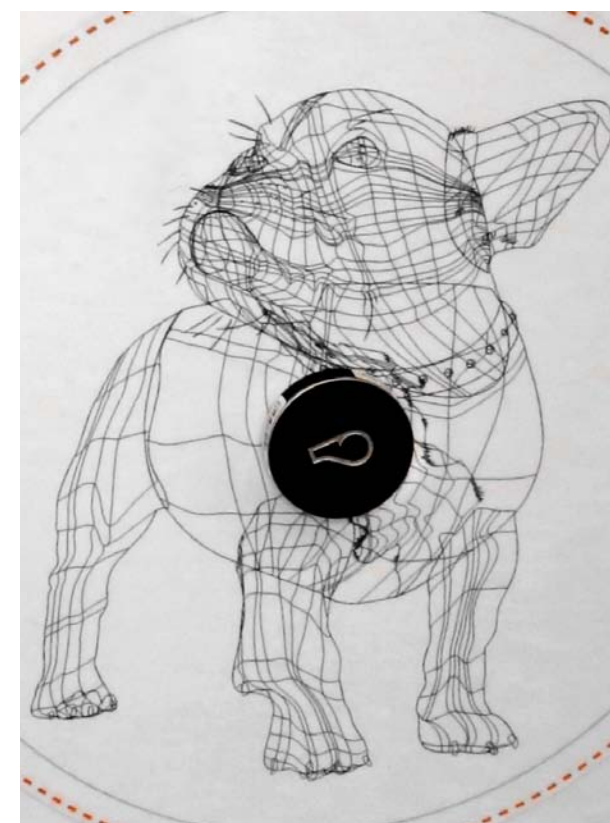
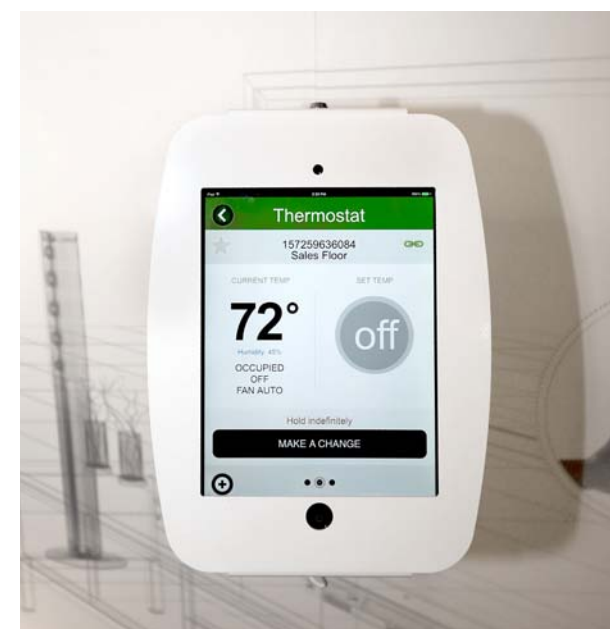
That's great news for companies like Freescale and other makers of motion sensors like gyroscopes and accelerometers, microelectromechanical systems (MEMS) sensors, sensors driving user interfaces, and health and environmental sensors. So are the findings of Accenture, which earlier this year polled U.S. consumers about their plans to purchase IoT devices and wearables in the next five years.

Some 69 percent of respondents to the Accenture survey said they planned to buy network-connected technology for their homes by 2019, and just under half said they would be purchasing a wearable device between now and 2019. A full 22 percent of the more than 2,000 U.S. consumers polled by Accenture said they already own a wearable device or will purchase one by 2015.

Freescale certainly wants to get its fair share of an IoT market Gartner has predicted will reach 26 billion units installed by 2020, Dixon made clear. But the Internet of Tomorrow tour isn't just a traveling advertisement for the company's products, the Freescale executive insisted. It's also meant to be a vehicle of inspiration and opportunity for the next wave of IoT innovators eager for the trailer to pull into their town.

## EVERY WHICH WAY

With the IoT predicted to explode in the next few years, it's no surprise that every device in your home and in your pocket is constantly becoming more connected.





# An Ambulance Drone, For Health Care on the Fly

BY RYAN WHITWAM



**T**he response time of emergency services can reach 10 or 15 minutes in many cities with heavy traffic, but that's not good enough when someone is suffering a heart attack. A student at the Netherlands' Delft University of Technology has unveiled a possible solution. The ambulance drone designed by Alec Momont can fly at 60mph to deliver a defibrillator to a patient in mere minutes.

The ambulance drone is a hexacopter painted in emergency services yellow. It can be dispatched to a location within 4.6 square miles in about a minute. Upon landing, anyone able to help the victim will be talked through using the attached defibrillator by an operator, who will also have access to a live camera feed from the drone to make sure everything is done correctly. Luckily, defibrillators are fairly easy to use.





When someone suffers a heart attack, time is of the essence. If normal cardiac rhythm can be reestablished quickly, survival and complication rates improve dramatically. It can take as little as 6 minutes for brain death to occur during a heart attack, something that the flying defibrillator could prevent.

One of the most common ways of treating a heart attack is with a defibrillator. You've probably seen hundreds of unrealistic depictions of this device in the media—they aren't miraculous machines that restart dead hearts, but can still save lives if used soon enough. A defibrillator is actually used to stop the life-threatening cardiac dysrhythmias, ventricular fibrillation, and tachycardia seen in heart attacks. Basically, it can eliminate irregular and accelerated rhythms that prevent the heart from doing its job.

Momont doesn't want to stop with the defibrillator. He imagines a future version of the ambulance drone with a full suite of medical supplies like an oxygen mask, EpiPen, and insulin injectors. Before any of that happens, there are legal issues to be worked out, and the guidance system needs to be perfected. At a cost of \$19,000 per unit, the drone wouldn't be inexpensive for emergency services, but it would cost less than adding more ambulance crews to lower response times.

**A HEARTBEAT AWAY**  
Designer Alec Momont thinks ambulance applications, such as this mobile defibrillator, may be a way to give controversial drone technology its just due in the public eye.



# Hot Future Tech Releases

Wondering what's coming out in the world of technology, gadgets, and games? This calendar tells you when the best new stuff ships.

BY ANTONIO VILLAS-BOAS

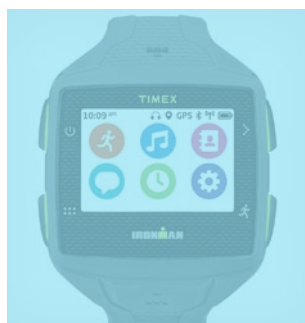
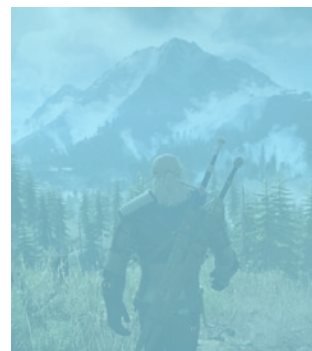
# 1

## PROJECT ARA

[projectara.com](http://projectara.com)

**Release: Q1 2015**

What if you could upgrade your phone's processor after the next generation of apps proves too much for it? Or replace its stock camera with a third-party shooter that outclasses even what you'd get on an iPhone? Project Ara is an initiative devised by Google to develop an entirely modular smartphone with components that can easily be swapped out at any time. With the Ara, everything from the case and the display to the speaker and sensors will be completely customizable.



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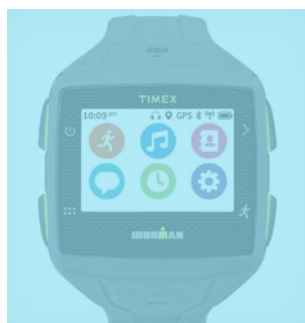
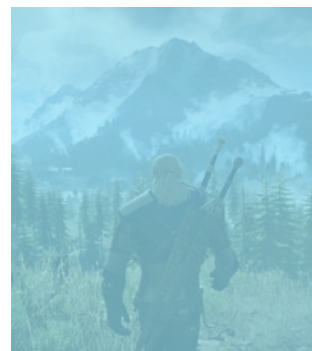
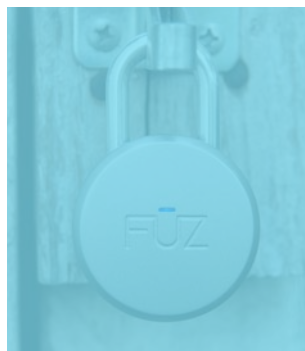
# 2

## SAMSUNG GEAR VR

samsung.com

**Release: December 2014**

If you try bringing your smartphone as close as possible to your eyes to create a big-screen HDTV effect, you won't get very far. With a little help from Oculus, the company behind the Oculus Rift, the Samsung Gear VR will perform all the magic needed to create an immersive, 360-degree viewing experience that lets you look around a virtual-reality space. It's similar to the Google Cardboard concept, but with less cardboard and more high-end materials.





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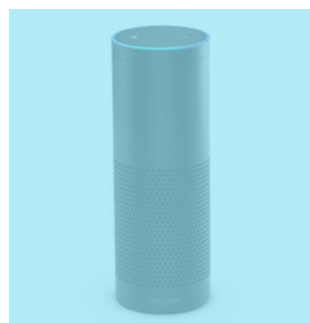
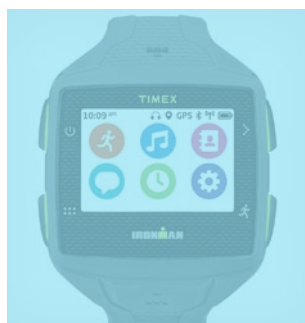
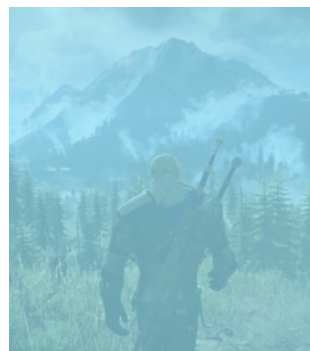
# 3

## JAWBONE UP 3

[jawbone.com](http://jawbone.com)

**Release: December 2014**

Fitness wearables started off with the modest task of tracking your daily steps. Now, they're measuring your heart rate while automatically figuring out exactly what your current activity is, whether it's running, cycling, or whatever else you do to stay in shape. The Jawbone UP 3 uses bioimpedance sensors to measure your heart rate, and Jawbone promises to deliver over-the-air updates so the sensor can measure other physiological signals, like respiration rate.





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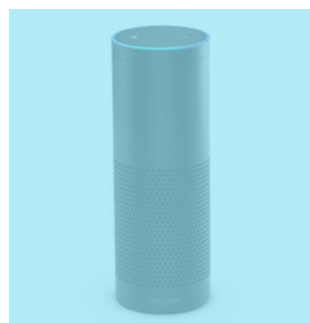
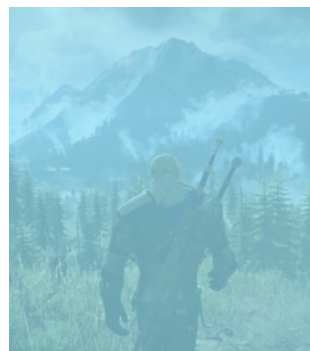
# 4

## ONBEEP ONYX

[onbeep.com](http://onbeep.com)

**Release: December 2014**

When first announced, the OnBeep Onyx was likened to the *Star Trek: The Next Generation* communicator, which Enterprise crew members tapped to communicate with each other. You can also look at the OnBeep as a very long-range walkie-talkie, as it will connect to your smartphone via the Android or iOS app and use your data to communicate with friends or family anywhere in the world, provided they also have an OnBeep device.





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# 5

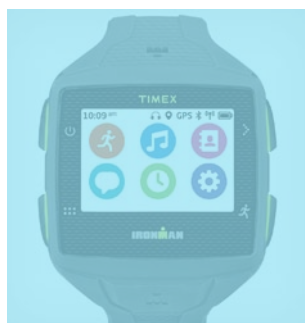
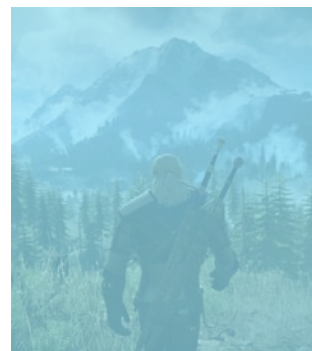
## FUZ DESIGNS NOKE

fuzdesigns.com

**Release: February 2015**

How can the trusty padlock possibly be improved? With Bluetooth, of course! The Fuz Desgins Noke will connect to your Android or iOS device via Bluetooth 4.0 to lock, unlock, and securely share access with trusted individuals.

You'll be able to set a Morse code—style tap code that you enter by pressing down on the lock's shank in case your phone isn't handy, or if the Noke's battery dies.





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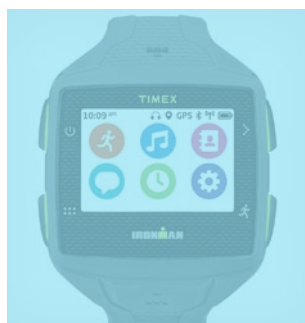
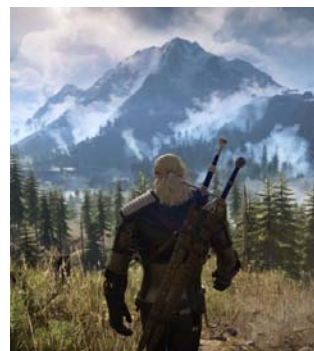
# 6

## THE WITCHER 3: WILD HUNT

[thewitcher.com](http://thewitcher.com)

**Release: February 2015**

Fans of The Witcher games and open-world RPGs alike, rejoice, for the developers of The Witcher 3: Wild Hunt claim the installment will be 30 percent larger than previous titles in the series and 20 percent larger than The Elder Scrolls: Skyrim. Playing as legendary Witcher Geralt of Rivia, you must embark on a mission to put an end to the brutal Wild Hunt army that's invading the Northern Kingdoms. The Witcher 3 will be available on the PC as well as next-generation consoles.



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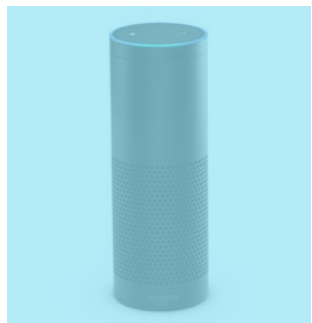
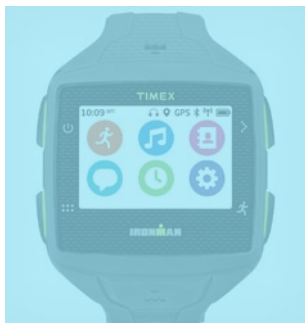
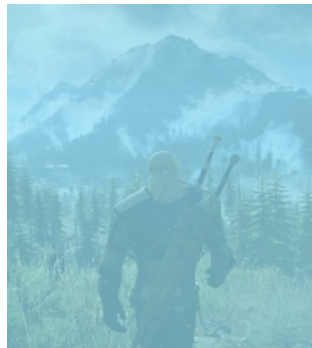
# 7

## WITHINGS HOME

[withings.com](http://withings.com)

**Release: December 2014**

The Withings Home is a 1080p home-monitoring camera with environmental sensors that will be able to detect when the air becomes overly saturated with volatile organic compounds (VOCs). Of course, it will use your Internet connection to send alerts and notifications to your mobile devices through compatible connected home ecosystem apps. With its wooden exterior finish, it's one of the few home-monitoring cameras that actually looks aesthetically pleasing, and could fit right into your home's décor.





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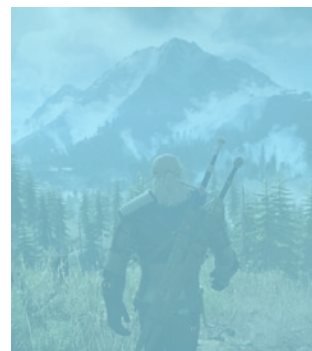
8

## TIMEX IRONMAN ONE GPS+

[timex.com](http://timex.com)

**Release: December 2014**

Activity tracking apps like Endomondo and MapMyRide require you to bring your mobile device along for the GPS tracking features, and large phones like Samsung's Galaxy Note 4 don't always make practical workout companions. Enter the Timex Ironman One GPS+, with, you guessed it, GPS. It can function independently from your mobile, and it connects to AT&T for sending messages. It also has 4GB of storage for music, as well as Bluetooth for easily connecting to headphones.



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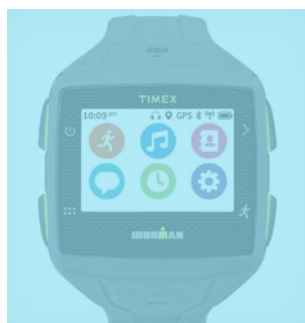
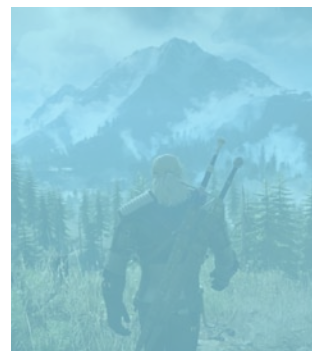
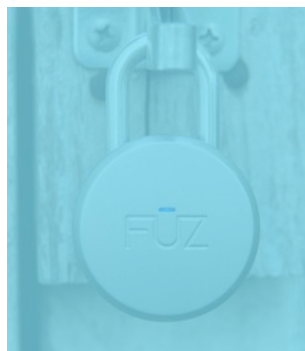
9

## AMAZON ECHO

[amazon.com/oc/echo](http://amazon.com/oc/echo)

**Release: December 2014**

The Amazon Echo is a voice-enabled, Internet-connected home assistant. It will listen for the trigger word "Alexa" with its far-field voice recognition, which uses seven microphones to hear you from any direction. You'll then be able to ask the Echo, or "Alexa," questions about topics like weather information and measurement conversions; you can also set reminders and issue music requests.





# Hot Future Tech Releases

Wondering what's coming out in the world of technology, gadgets, and games? This calendar tells you when the best new stuff ships.

BY ANTONIO VILLAS-BOAS

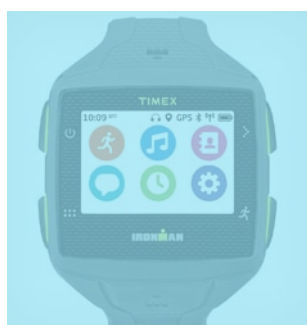
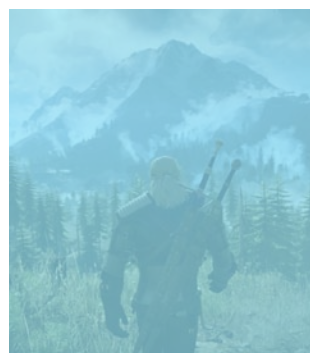
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## HEXO+

hexoplus.com

**Release: May 2015**

Drones with GoPros attached are nothing new, but autonomous drones with GoPros are becoming a reality. Don't worry, the Hexo+ won't become sentient—it will only do what it's instructed, including following you around automatically. It will register your slightest movements and reposition itself constantly with the instructions you set via its Android and iOS mobile app, which will include subject framing locks. Amateur videographers, the Internet awaits your footage.



# Opinions

**JAMIE LENDINO**

**WILL GREENWALD**

**TIM BAJARIN**

**The future  
of recorded  
music hangs  
in the balance.**

**JAMIE LENDINO**

WHY MUSIC SHOULD  
NOT BE FREE



# Why Music Should Not Be Free

**T**aylor Swift's recent move to pull her music entirely from Spotify wasn't a huge surprise. She had already penned an op-ed for *The Wall Street Journal* this year arguing that file sharing and streaming have shrunk album sales drastically, and that it's her opinion that "music should not be free, and [that] individual artists and their labels will someday decide what an album's price point is." Swift wanted to keep her latest album on delayed release, or at least only available to Spotify's premium subscribers, which Spotify didn't want.

Despite the overall decline in revenue, there have been plenty of notable milestones in the music business this century. When it launched the iPod and the iTunes Music Store in the early 2000s, Apple changed the way people purchase and consume music. Napster, Rhapsody, Sony's digital arm, and other competing services attempted to remake themselves in Apple's image and failed. Eventually others came in and did it correctly; now you can choose between Amazon, Google Play, and Apple when buying music, and get a solid experience in each case.

Then you have streaming radio. Pandora, Slacker, and other Internet radio sites became successful, but at the expense of musicians, who made very little in comparison (although it was still better than zero, which they made on file-sharing sites).



Jamie Lendino, managing editor of Consumer Electronics for *PC Magazine*, has also written for *Laptop*, *Sound and Vision*, *Popular Science*, and other publications.

## THE RISE OF ON-DEMAND MUSIC

Internet radio is one thing, but the rise of on-demand music is something else entirely. And the future of recorded music hangs in the balance.

Spotify initially looked like the holy grail of music sites—streaming for free, or a low monthly fee without ads, but also letting you choose all of the tracks yourself, instead of relying on a randomized stream from Internet radio sites. Things changed significantly in 2013 when Spotify began letting you add songs and albums to your overall collection, and not just to specific playlists—effectively turning it into a giant free iTunes app. The thing is, it turns out that if you're a working musician and songwriter, making real money from these services is next to impossible.

Spotify's argument is that it will be able to increase royalties to artists over time. The service says it pays almost 70 percent of revenue back to artists, but clearly there's not enough total revenue to support them now. If you're a musician and you get just \$16 for a million plays of your music, how could you survive on that and further develop your career and art?

The biggest problem here is probably Spotify's free, ad-supported version. The vast majority of listeners pay nothing for music. The same goes for people listening on YouTube, with ads playing before each song. When you subscribe to Spotify's premium service, or to Netflix, at least you're paying something, however minuscule.

Some artists contend that because everyone's already decided music is free and you can't put the genie back in the bottle, it's better people take music from you and not BitTorrent. And hey, at least they'll give you their email address. In addition, countless venues expect musicians to



play gigs or get their songs placed in indie movies for additional “exposure” in lieu of payment.

Thousands of musicians would like to disagree with this. They need to pay rent and buy groceries. You can’t eat with exposure. You can eat with money. And, unlike artists who are already well known and established, up-and-comers today have little to look forward to.

People pay for paintings, for books, for sculpture, for craftsmanship on Etsy—all of that is worth money to them. People generally understand that it takes months of work to make things, and artists and authors somehow should be compensated for that. So why do so many think that doesn’t apply to music?

Maybe it’s hard to understand unless you’ve been on the other side as a musician. Radio is one thing, but the convenience of using Spotify to call up a song whenever you want it should give more than a fraction of a penny to the artist.

## **RECORD AND PROMOTE FOR FREE, TOUR FOR MONEY?**

Aside from trust-fund kids, who in the future is going to have the money to get their music out to people? Everyone can release an album these days, thanks to GarageBand and SoundCloud, but most of them are bad. How do you get the really good ones to rise up and get noticed? One answer could be that you become a self-promotion machine on social media, but, as Alina Simone pointed out in a recent *New York Times* story, that cuts down on the time one can spend writing songs. “Not everyone wants to be an entrepreneur,” she wrote.

In addition, people pay for art and often only think about the artist. They don’t think about the engineer, the backup singer on track seven, or the



**Unlike artists who are already well known and established, up-and-comers today have little to look forward to.**



artwork designer—those people need your money, too. Major labels are one thing, but with a straight-up indie project, very few people are making stuff that involves no one else's labor.

Yet everyone hates musicians who complain about giving away their music. People hate the famous ones because it looks like an unnecessary money grab, as they're making so much money from touring; and the same people hate the not-famous ones because, hey, they're not famous, so they must not be good. Musicians are vilified when they express frustration with the current system. Many are afraid of the backlash; anonymous commenters on the Internet can be incredibly self-righteous about what they're entitled to have for free.

Maybe the bar was set back when Napster first came out and everyone began downloading music for free. That was when none of the labels had an answer for digital music, aside from DRM-ridden software and suing everyone they could find. But just because people decided not to pay for music doesn't mean it lacks inherent value. Free sites are free because they're ad-supported and because your data is valuable to marketers. With digital music, there's literally nothing, aside from the recording; people just take it.

The first week of sales for Swift's album *1989*—1.3 million, or more than any other album in a week since *The Eminem Show* in 2002—underscores her point in pulling her music from Spotify. It shows that people are still willing to pay for music, given the right incentive.

I don't know how sustainable that is going forward. I wish I had the answer. But the idea of recorded music being free will never sit well.



**Just because people decided not to pay for music doesn't mean it lacks inherent value.**



[jamie\\_lendino@pcmag.com](mailto:jamie_lendino@pcmag.com)



# Plasma HDTVs Are Dead

**I** have some bad news, cinephiles: Plasma is dead. It won't see a resurgence. It's not pining for the fjords. It's passed on. It's ceased to be. It's expired and gone on to meet its maker. Actually, it already met its maker and its maker looked at it and said, "Well, this technology's rubbish now, so let's bin it." I guess the parrot sketch doesn't always hold up.

LG was one of the two remaining pillars of plasma screens in the market after Panasonic shut down production last year. Now LG is leaving plasma as well. Sony abandoned plasma years ago. Toshiba, Vizio, and JVC don't make plasma screens anymore. Chinese manufacturers like TCL and Hisense, meanwhile, haven't given plasma so much as a glance.

That leaves Samsung, and a single HDTV manufacturer can't keep an entire panel technology afloat. That, and it's likely Samsung will drop plasma entirely in 2015. The company currently only sells one plasma HDTV series from its 2014 H-line of televisions; every other model is from Samsung's 2013 F-line. That's a pretty clear sign that interest in plasma is dwindling, to say the least.

We'll get a final verdict at the Consumer Electronics Show in January, when Samsung and most other HDTV manufacturers unveil their plans for 2015. If Samsung doesn't announce a plasma screen at that point, plasma will officially be dead.



Will Greenwald, a *PC Magazine* consumer electronics analyst, has also written for CNET, GamePro, Geek.com, *Sound & Vision*, *Maximum PC*, and other publications.

## DEAD TECH WALKING

Let's be honest: Plasma hasn't been the same since Pioneer left the television market and took its superlative Kuro plasma screens with it. After that, Samsung and Panasonic put out a handful of excellent plasma televisions, but the majority of plasma panels have been budget and midrange models with mediocre performance. They've since been replaced entirely by LED-backlit LCD screens, which have dropped in price to the point that they're dirt cheap even compared with low-end plasmas from two years ago.

This has been a long time coming, and it's not a particularly big deal. OLED technology is the future of high-end HDTVs, and after testing a couple in PC Labs, I can say with certainty that it's capable of outstripping plasma with contrast ratio, black level, and color accuracy.

Take, for example, the LG 55EC9300, the second OLED screen we've tested. It can display perfect black inside a contrast tunnel, meaning one part of the screen can produce absolutely no light even if there's a picture on another part of the screen. That was basically unheard of, even for the best plasma screens. Add color that's very accurate out of the box and capable of exceeding the standard color space by a great deal with the change of a setting, and you can see how there just isn't much room for plasma anywhere in the market anymore.

It was a pipe dream several years ago, when plasma was still rightfully held up as the best flat-panel technology and most LCD televisions were lit by CCFLs, but times have changed. OLEDs are still enormously expensive, but they're getting more affordable by the quarter, and a \$15,000 screen I tested in February has been bested by a



\$7,000 model I tested last month. In 2015, expect 55-inch OLEDs to scrape the \$3,000 range.

Plasma still has some benefits when it comes to refresh speeds and motion processing. Of course, CRT still has some benefits, to which some fanatical hard-core gamer fans can attest. They just aren't enough benefits to overcome how economical and functional LED-backlit LCDs have become or how much performance potential is in OLED technology as it gets polished.

I'm sorry, plasma fans, but there's no way around it. Plasma screens are dead. It's only a matter of time before Samsung takes its last parrot back to the shop.

*[will\\_greenwald@pcmag.com](mailto:will_greenwald@pcmag.com)*



**Plasma still  
has some  
benefits.**

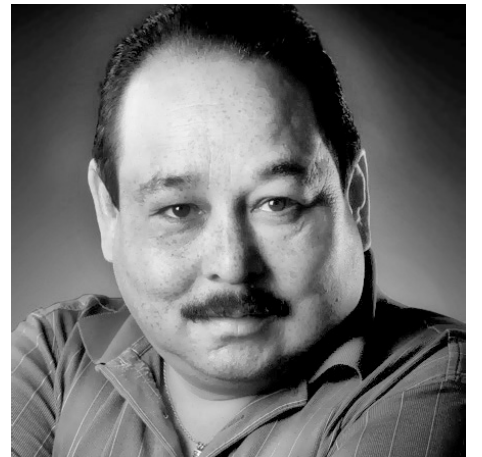


# How Tiny Tech Firms Are Disrupting the Giants

Over the last five years, Samsung has become a dominant player in the smartphone and tablet space, particularly in China, Korea, and other parts of Asia. It's also Apple's biggest competitor in the U.S., Europe, and elsewhere. But Samsung's profits have declined substantially across the last two quarters, and its executives recently warned that profit would be off as much as 60 percent in the most recent quarter.

How did this happen? I blame something called the Shenzhen ecosystem effect. Shenzhen is a large town about 30 miles north of Hong Kong, and an important part of China's manufacturing sector. What makes this region interesting is that it's emerged as kind of a technology parts depot that provides off-the-shelf components anyone can purchase to make white box, or no-name, products.

During my first visit to Shenzhen many years ago, I was taken to a six-story building that was affectionately called the flea market for cell phones. On every floor were dozens of vendors with glass showcases peddling cell phones and early smartphones by the hundreds. In Asia and many other parts of the world, users buy a cell phone first and then go to a store, buy a SIM card, and activate service. The Shenzhen flea market was a popular destination for phone shoppers, as they could browse multiple models.



**Tim Bjarin is the president of Creative Strategies and a consultant, analyst, and futurist covering personal computers and consumer technology.**



Most of the phones in this flea market carried no known brand name. These white box devices were quite popular in China and parts of Asia until Apple introduced the iPhone.

Shenzhen component makers have become much more sophisticated in the last seven years, and they're now supplying high-quality tablet and smartphone components to all sorts of firms. Vendors from all over the world are trekking to Shenzhen to buy these components, and taking them home to compete against established brands like Samsung, Lenovo, LG, and Apple.

The best example of this comes from a company called Xiaomi, which was founded in 2010 but has managed to top Samsung in China. Until early 2013, Samsung was a top player in China, but it has faced increased competition from the likes of Lenovo, Apple, and now Xiaomi.

MicroMax has done something similar in India, and Cherry Mobile is doing it in the Philippines. A similar pattern is being replicated in Brazil, South Africa, and Eastern Europe, all markets that Samsung once dominated.

Samsung has a double whammy going on here, too. One of the reasons it was so profitable in the mobile business was because of its Galaxy S4 and S5 phones and Note 3 phablet. These smartphones are in the premium category, and Samsung dominated the 5- to 5.7-inch smartphone space for almost three years. But now that Apple has the larger iPhone 6 and 6 Plus, Samsung is taking a hit.

What makes this even more problematic for Samsung is that its business model is to make money from the hardware while these white box vendors make their money on apps and local services. Apple makes money on hardware, software, and services.

## WHITE BOX PCS

We've always had white box PCs in the market. In fact, white box devices represent about 40 percent of all PCs shipped. But companies like HP, Dell, Lenovo, Acer, Asus, and others have solid brands and offer things like warranties and service agreements. So even though they're more expensive than white boxes, they can compete on brand, distribution, and customer services.

This has been especially true in the U.S., Europe, and most of the developed markets. But if you look at what is going on with laptops now, and see how products like Chromebooks and low-end laptops and desktops are dominating the consumer markets, even these vendors are being squeezed when it comes to trying to actually make money just on hardware. We're starting to see new PC players use Shenzhen components to create PCs to take to their home markets. Once there, they add local apps and services and sell them for almost nothing.

For Samsung, the Shenzhen effect is a serious problem. Its lack of software and services for local markets will make it difficult for it to compete with Xiaomi, Huawei, and others. Even worse is the rumor that companies like Alibaba and Tencent may release smartphones of their own in the next year. Both of these Chinese companies have strong local services they can tie to these smartphones, letting them basically give the devices away for free because all the money will be coming from software.



**White box devices represent about 40 percent of all PCs shipped.**





# Reviews

## CONSUMER ELECTRONICS

**Basis Peak**

**Amazon Kindle Voyage**

**Google Nexus 6  
(Unlocked, 32GB)**

**Apple iPad Air 2**

## HARDWARE

**Lenovo Yoga 3 Pro**

**Dell XPS 18 (1820)**

**Apple Mac mini**

**Lenovo ThinkPad W540**

## SOFTWARE & APPS

**Adobe Premiere Elements 13**

**Our Favorite Apps for December**

**Basis Peak**

\$199.99



# Wrist-Based Fitness Tracking Reaches Its Peak



The new Basis Peak is the best activity tracker for fitness you can currently buy. It looks like an ordinary watch, and a slightly sporty one at that. But the magic is in how it automatically detects when you're walking, running, sleeping, and bicycling to measure all those activities. And you never have to put it into sleep mode or running mode—it does that part for you.

The Peak also records your heart rate throughout, plus skin temperature, perspiration, calories burned, and more. In the case of sleep, the Basis Peak breaks down your light, deep, and REM sleep cycles, as well as your restless and waking moments. The device, which is an updated version of Basis' no-longer-available Carbon Steel Edition, even supports some smartwatch functionality, namely incoming text messages and phone calls. All of this makes the Peak our new Editors' Choice for fitness activity trackers.



## DESIGN AND COMPATIBILITY

The Peak is a watch-style activity tracker available in two colors: matte black and white. Its large, high-contrast LCD screen shows either dark text on a light background or vice versa, depending on the light conditions around you. You won't find any buttons on this watch, as all the navigation happens via a touch screen. The housing is forged aluminum, topped with Gorilla Glass. Petite people will likely find the Peak too big. Because the Peak's optical heart rate monitor is behind the watch face, it helps to wear it slightly higher on the arm than in the wrist bone divot, especially while working out.

The silicone band feels more sporty and casual than business-like, but it's comfortable and has ridges that encourage some airflow to the skin. The straps come off, and the device is compatible with other standard watchbands. The Peak has a waterproof rating of 5ATM (50 meters), so you can take it in the pool, no problem. The battery lasts anywhere from two to five days, depending on use.

The watch ships with a cradle and charger, and one detail I'm happy to see is that the cradle and cord are separate. The cord is a standard micro USB-to-USB, making it easy to replace if necessary. The cradle snaps into place courtesy of a simple magnet, without you having to remove the wristband, as was the case with the Carbon Steel Edition.

Whereas Basis' first watch could sync via a computer when you connected the USB charger, the Peak requires a mobile device, and can't sync with a computer. You can still access all the information the Peak collects about you via the MyBasis.com website, but getting that data to the Web requires a mobile phone or tablet.

## Basis Peak

**PROS** Fully automated activity detection. Excellent Web app. Includes heart rate, skin temperature readings. Smartwatch functionality support. Waterproof to 50 meters. Good display. Comfortable. Swappable band.

**CONS** On the large side. No buttons. Doesn't measure distance. Mobile-only wireless syncing. No stopwatch, calorie counting system.



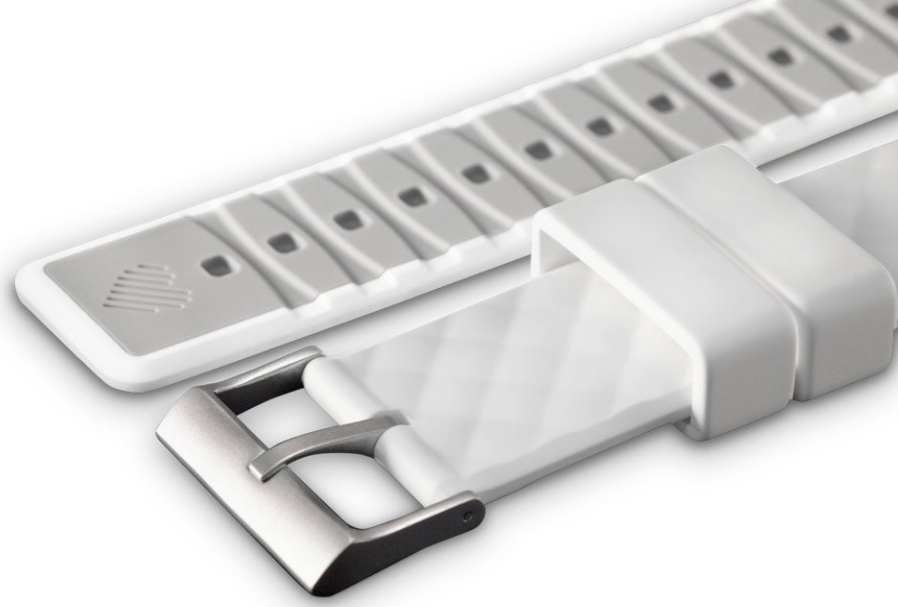
## AUTOMATION AND FEATURES

As mentioned, the real selling point of the Peak is the automation. When you run, it knows. When you ride your bicycle, it knows. When you walk, it knows. Fall asleep? Ditto. No other activity tracker works this way. Hop on your bicycle while wearing the Peak, and within a few seconds of pedaling you'll see a bicycle icon appear on screen. Peak shows your time in this activity, calories burned, and other relevant stats. It just works.

A lot of activity trackers give you a stopwatch option for tracking any activity other than walking, but this is one feature notably missing from the Peak. Not having a stopwatch is one reason the Peak is not the most evolved in terms of being a sports watch or runner's watch. (A company official recently said she can't rule out that there will never be a stopwatch feature pushed to the watch via a firmware update, but that there is no plan to add one at this time.)

If you're just getting into running, I would recommend checking out the Garmin Forerunner 15, or anything else in the Forerunner series. The Forerunner 15 is something of an entry-level runner's watch, but it's good and also counts your daily steps.

The other noteworthy feature new to the Peak is support for push notifications, though only for incoming texts and phone calls. If you're looking to dabble in smartwatch functionality but are afraid a full-featured device will only create more distractions, using the Peak could be an easing-in. Basis CEO Jef Holove told me that developers will be able to get their hands on the Peak's APIs to enable notifications from any app.







## THE BASIS FOR FITNESS

The Basis Peak can automatically detect and track whatever fitness activity you're performing. But because it lacks a stopwatch and doesn't measure distance, it's of limited use to serious runners.

## SEEING YOUR DATA

The whole point of having an activity tracker, of course, is to track your activity both day by day and over time. One neat feature in the Basis mobile app and MyBasis website is a focus on habits rather than just single-day goals.

The more you use the Peak, the more Habit Cards you'll unlock. These help you keep track of the consistency of hitting your daily goal, such as sleeping more than 7 hours at night for more than three days in a given week. The idea is to put some focus on long-term changes.

The website and mobile app (for Android or iOS) give you detailed insight into your activity. In a large graph, you can zoom in on any point of your day to see your exact heart rate, skin temperature, perspiration level, calories burned, and more, at any minute. All the interaction is fluid. Pinch-and-stretch zooming lets you see more or less detail. And remember, all your activities are automatically recorded, so any running, walking, bicycling, and sleeping is tagged and categorized without your having to do anything.

In my testing with the Peak, I have yet to see an activity fully missed or miscategorized. With the old Carbon Steel Edition, only twice did the tracker get something wrong (it thought I fell asleep at the movies once, when I swear I was awake; another time it mistook a very short bicycle ride for a run).

The Web dashboard and app work well, but they aren't as comprehensive as Fitbit's apps for helping you track other pieces of your health. Fitbit has a calorie-logging system, as well as integration with MyFitnessPal so you know how many calories you burned as well as ingested—keeping an eye on that balance is crucial for people trying to lose weight. Fitbit's system also has a place to log your daily glucose reading, blood pressure, weight, as well as a



place to note how severe your allergies were today. You can even add one custom item to track, which can be anything from pain levels to how much alcohol you consume. The Basis app and website have none of these features.

## AMONG THE VERY BEST

If you're in the market for a general activity monitor with heart rate monitor that can automatically track your walking, runs, bicycle rides, and sleep, order a Basis Peak without hesitation. It's really the best there is on the market now. Is it the perfect activity tracker for fitness? Not quite. The lack of a stopwatch remains a mystery. And having a touch screen-only interface might sound tech-forward, but in the heat of exercise, I need a button to mash, especially if I'm wearing gloves. Also, miles are more meaningful than steps, and I want to see how many miles I walk in a day, right on the device. Even so, the Peak gets almost all the important details right.

**JILL DUFFY**



**HITTING ITS PEAK**  
The full-featured Basis Peak, which comes complete with an integrated heart rate monitor, is the best overall activity tracker you can currently buy.



# Fantastic Voyage, Steep Price

**A**mazon's various Kindles have long been the most popular ebook readers on the market, but that doesn't mean they've always been the best from a technology standpoint. Barnes & Noble beat Amazon to the punch with a front light, and Kobo eclipsed the company in screen resolution. The Kindle Voyage changes that. Amazon's latest ebook reader is not only the best the company has ever made, it's the best ebook reader currently available. It has a lovely, thin design, with an incredibly sharp display and a useful adaptive front light, not to mention Amazon's excellent ebook store. That said, I'm still not sure any of this is enough to warrant its \$199 price tag.

## DESIGN AND DISPLAY

At a glance, the Voyage doesn't look all that different from the Paperwhite or the newly refreshed touch-screen Kindle, in the sense that all three share the same general size and form factor. But look closer and lots of important changes emerge. The Voyage measures 6.4 by 4.5 by 0.3 inches (HWD) and weighs 6.3 ounces

## Amazon Kindle Voyage

\$199 (Wi-Fi only, with Special Offers)



### CHAPTER I

THE year 1866 was signalled by a remarkable incident, a mysterious and puzzling phenomenon, which doubtless no one has yet forgotten. Not to mention rumours which agitated the maritime population and excited the public mind, even in the interior of continents, seafaring men were particularly excited. Merchants, common sailors, captains of vessels, skippers, both of Europe and America, naval officers of all countries, and the Governments of several States on the two continents, were deeply interested in the matter.

For some time past vessels had been met by "an enormous thing," a long object, spindle-shaped, occasionally phosphorescent, and infinitely larger

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kindle

(or 6.6 ounces for the 3G model), making it the thinnest, lightest Kindle there is. You'll notice there's less bezel all around, and the screen has been changed from plastic to glass, making the front of the reader completely flush, rather than slightly dipped as on the other models.

The display uses scratch-resistant glass, and has been micro-etched to diffuse light, so you can read the Voyage outside without any glare. The etching pattern supposedly makes the glass feel more like paper, but I think you get a better sense of this using the Kindle Paperwhite or base Kindle.

The Voyage uses a brand-new, higher-resolution Paperwhite display; its pixel density is 300ppi, which looks amazing whether displaying text (at any font size) or images. For comparison, the Kobo Aura H2O and Aura HD have 265ppi displays. They all look nearly as good when held side by side, but when you get super close everything on the Voyage remains uniformly crisp, whereas the Auras can show just the slightest hint of pixelation. The Voyage is the closest you can get to reading an actual book.

In addition, the Voyage is also noticeably brighter than the Paperwhite (up to 39 percent), thanks to the new front light. Better yet, the light is adaptive, so if you select the Auto Brightness setting, it will automatically adjust based on the light around you. I love this feature—no matter where you use the Voyage, the lighting is pretty much perfect. Amazon also claims the brightness is tuned to match the way the eye responds to darkness. So if you're reading in the dark, you'll need a brighter light at first than you will after reading for 30 minutes, so the light will slowly turn down over time.

Aside from the glass front panel, the Voyage is made of solid magnesium, with a soft-touch finish reminiscent of the Paperwhite's, which gives it a premium, classy feel. The power port is still on the bottom, but I'm not too fond of the decision to move the

## Amazon Kindle Voyage

**PROS** Incredibly sharp display. Adaptive front light. Thin design. Excellent ebook store.

**CONS** Expensive. No memory card slot, ePub support. Ads cost \$20 to remove.





Power button to the back of the reader. It's hard to find, and it likely renders any existing case you were hoping to reuse incompatible.

## FEATURES

The Voyage comes with a black USB cable, but no AC adapter. Amazon claims up to six weeks of battery life based on half an hour of reading per day with wireless off and the light level set to 10. That's two weeks more than the Kindle and two weeks less than the Paperwhite, but plenty of time in any case.

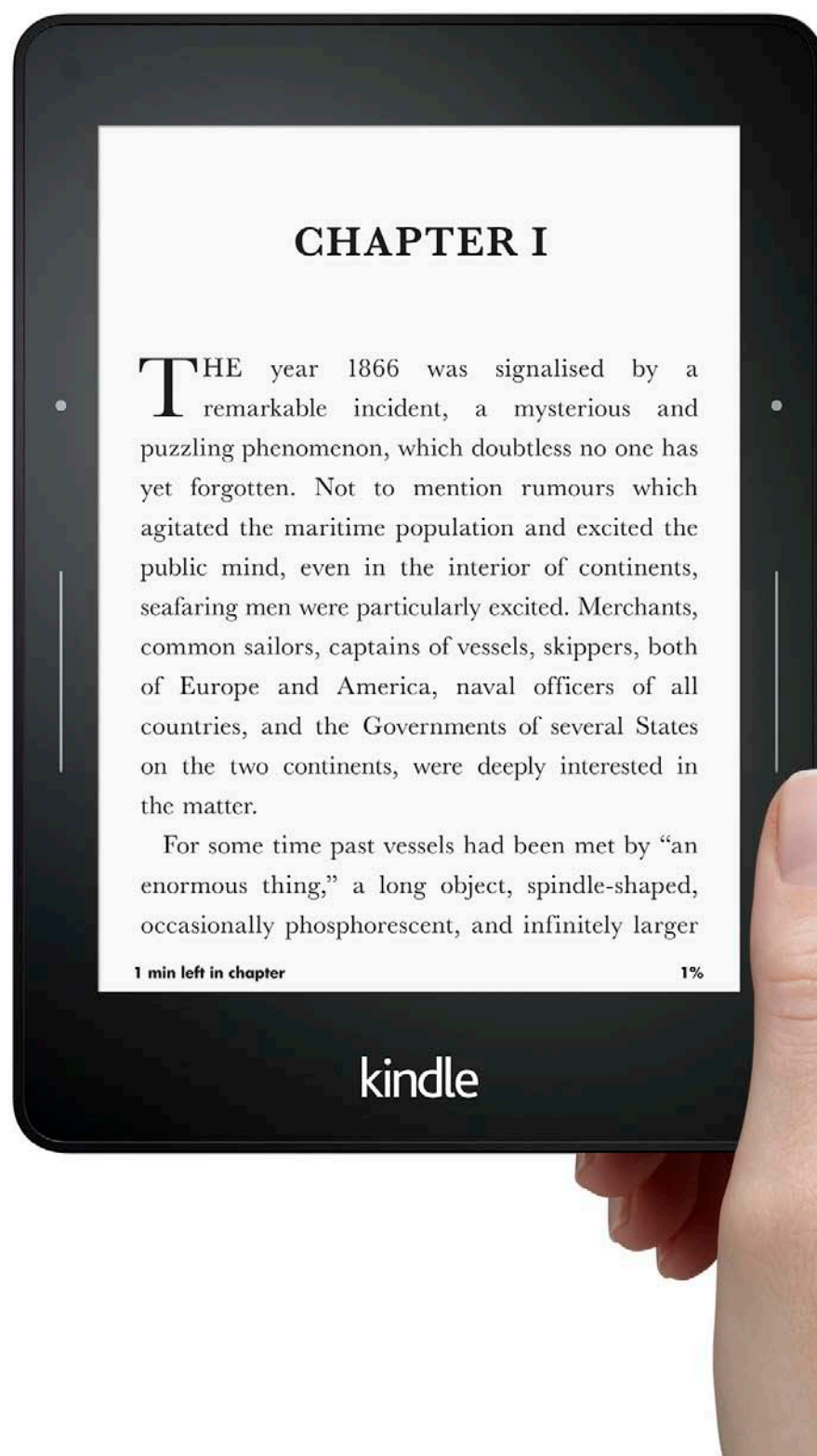
The Voyage hooks into 802.11b/g/n networks, and a 3G cellular option is still available for an additional \$70. It comes with 4GB of storage—the same as the other two Kindles now—which should be good for more than 2,000 books. Amazon also stores your purchases in the cloud, so you can retrieve content whenever you'd like and view it on other devices. Unfortunately, even on the high-end Voyage there's no memory card slot, so there's no way to expand storage. It also makes it a bit more challenging to sideload additional files.

For file support, the Voyage handles Amazon's own Kindle formats (AZW and AZW3), along with DOC, DOCX, HTML, MOBI, PDF, and TXT. There's still no native support for EPUB files, though.

## INTERFACE AND READING

If you already own a Paperwhite, or have seen the new touch-screen Kindle, you'll be familiar with the interface on the Voyage. It's touch-based, with a row of icons at the top of the screen for Back, Cart, Home, Goodreads, Menu, and Search. The interface displays the covers of six books per page, and you can choose to view all of your books in the cloud or just the ones on your device.

If you tap anywhere near the top inch of the screen, you'll bring up the Menu bar, which has the same controls as you'll find on the home screen, along with options to adjust the font, go to a specific page, bring up X-Ray for more



information on a topic, share to Facebook or Twitter, or bookmark pages. The bottom of the page shows you how much reading you have left in the book by percentage, as well as your reading progress in the form of your location or page, or your time left in a chapter or the rest of the book.

After you tap on a book to start reading, things get slightly different. To turn a page, you can tap on the left or right side of the display to flip backward or forward. But you can also use one of the new PagePress buttons on either side of the display. Essentially, PagePress is a pressure-sensitive sensor located directly underneath the bezel. Page-forward sensors are marked by a 1.2-inch vertical gray strip, roughly at the spot your thumb sits when holding a book. Page-back sensors are small gray dots located about an inch above.

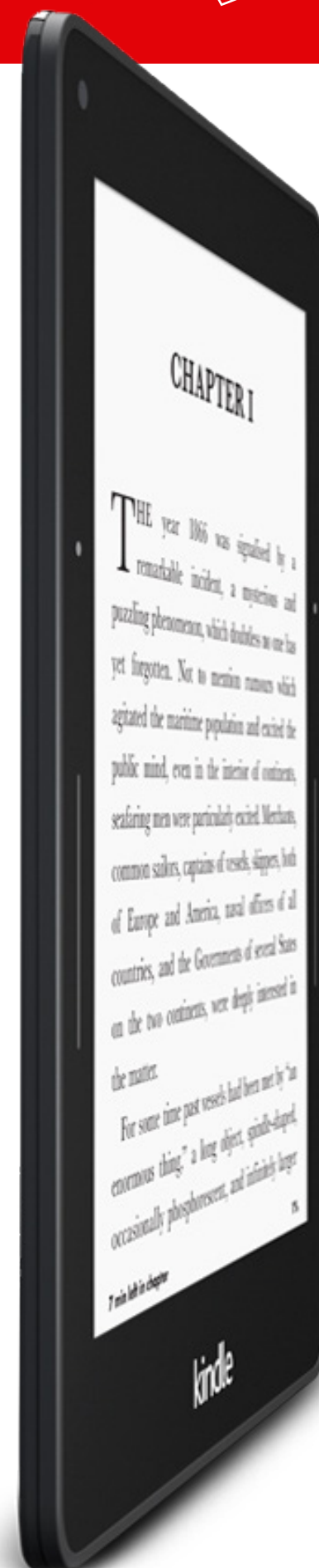
All you have to do is rest your finger on the sensor and press it lightly, and you'll be able to flip to the next page or turn back. Amazon claims you can do this without lifting a finger, but that's assuming you keep your finger on the sensor the entire time you're reading. The not-quite buttons deliver a satisfying response thanks to some subtle, quiet haptic feedback. I was afraid to trigger one accidentally, but I didn't manage to do so after a few days of reading. Compared with tapping on screen, however, I did find PagePress less reliable—thinking about where I needed to tap took me out of the book, and sometimes pages wouldn't turn if I didn't apply enough pressure—and slightly slower.

## KINDLE STORE AND CONCLUSIONS

Amazon's Kindle Store is better than ever. It's filled with lists and recommendations, and generally seems to have the best pricing out there (with more than a million titles for \$4.99 or less). It's easy to subscribe to magazines and newspapers, and Amazon Prime users can borrow books for free from a list of more than 350,000 titles. Amazon recently introduced Kindle



**Amazon's  
Kindle Store  
is better  
than ever.**







Unlimited, which is sort of like Netflix for ebooks. It gives you unlimited access to more than 700,000 titles per month for \$9.99, though you probably won't find a number of brand-new bestsellers. Amazon apps for Android and iOS devices, as well as Macs and PCs, sync your book collection, so you can put down one device and pick up on the same page on another one.

Amazon also recently announced a number of promising new features for its latest ebook readers, including Family Library, which lets you access books from the account of your partner or other member of your immediate family. It also promises deeper Goodreads integration, a more advanced X-Ray feature, and Word Wise, which automatically places short definitions above difficult words. These features will be released in an update before the end of the year.

Clearly the Kindle Voyage is an outstanding ebook reader. But it costs \$199 for the version with Special Offers (ads that appear whenever the Kindle is locked, and at the bottom of your home screen while in use). I happen to find Special Offers useful for discovering new books, but you can either pay \$20 to remove them or buy a version without the ads up front. But that brings the already-pricey Voyage well past the \$200 mark. For that amount, you can pick up a nice color tablet like the Google Nexus 7.

If you were already considering a high-end reader, then I prefer the Voyage for its superior screen and Amazon's ecosystem. But I think most people will be perfectly happy going with the \$119 Paperwhite and spending the extra \$80 on new books. Don't get me wrong: I'd love to receive a Kindle Voyage as a gift. I just probably wouldn't buy one for myself.

**ALEX COLON**

**Google Nexus 6**  
(Unlocked, 32GB)

\$649



## Google's Huge New Nexus Is One Fab Phablet



With a massive 6-inch display and a relatively high price, at least in Nexus terms, Android's latest flag-bearer marks a step in a bold new direction for Google. The Motorola-made Nexus 6 challenges more than just outstretched hands—it challenges existing norms for mobile computing. Google doesn't want you to do more with less or more with more. The Nexus 6 is a call to do more with fewer, rendering the small-screen Android tablet obsolete.

The Nexus 6 is supersized and supercharged with few compromises beyond size. But that size will either be its greatest strength or biggest weakness, depending on your personal preferences. The Nexus 6 isn't a slam-dunk value like its predecessors, but if you're willing to buy into Google's vision for mobile, there's no better choice on the unlocked market.



## DESIGN, FEATURES, AND CALL QUALITY

At what point does big become too big? Having used the 6.44-inch Sony Xperia Z Ultra and now the Nexus 6, I'm drawing a line in the sand at the 6-inch mark. At 6.27 by 3.27 by 0.4 inches (HWD) and 6.49 ounces, the Nexus 6 is nearly half an inch narrower and an ounce lighter than the Z Ultra. That makes a world of a difference, not to mention the more ergonomic arching back. I can barely hold the Z Ultra in one hand. I can securely hold the Nexus 6 and still reach roughly 50 percent of the display with my thumb. Compared with the iPhone 6 Plus or Galaxy Note 4, using the Nexus 6 is still going to require more feats of manual dexterity, but my thumb reach and grip confidence are effectively on the same level here.

Motorola didn't veer off course at all from its non-Nexus flagship, the Moto X. The Nexus 6 looks like a dutifully scaled-up version. The rigid aluminum frame feels just as good here as it does on the Moto X, but you only get two color options (blue or white) and no exotic material options. That's unfortunate, because the matte plastic is a letdown. It lacks the grippiness of soft-touch finishes and is an eager canvas for grease and smudges.

The Nexus 6 is all display—6 inches of glorious Quad HD (2,560-by-1,440 pixel) AMOLED, to be precise. Taken in isolation, the screen looks incredibly vibrant, bright, and sharp (493ppi). But when it's lined up next to the Note 4, you start to notice the beige whites of the Nexus 6 and miss the blinding maximum brightness that kicks in for the Note 4 under outdoor lighting. Colors are more true to life here, at least, and the off-angle bluish hue isn't quite as dramatic. I'd give the edge to the Note 4. Above and below the display are stereo speaker slits that pump out impressive mobile audio. Maximum volume is louder, audio sounds richer and more dynamic, and stereo separation is more convincing than on any other phone, including the HTC One (M8).

## Google Nexus 6 (Unlocked, 32GB)

**PROS** Gorgeous, expansive display. Blazing fast. Superb camera. Uses stock Android Lollipop with promised updates.

**CONS** Huge.



## BIG BUT THIN

Though the Nexus 6 measures over 6 inches in length, it's less than half an inch wide. The phablet weighs 6.49 ounces.



Google and Motorola only make one American-model Nexus 6, which covers every applicable band for AT&T, T-Mobile, Sprint, and Verizon. That includes 3G GSM and CDMA, as well as 4G LTE and carrier aggregation. I primarily used an AT&T SIM for my tests in New York City, but a T-Mobile Nano SIM worked without issue. Call quality was stellar in my tests, offering generous volume in the earpiece with uniformly clean and clear transmissions through the mic. Noise cancellation is top notch, easily dispensing with even a loud city street—callers on the other end of the line heard no signs of a large truck barreling down the road at one point.

Wi-Fi performance is particularly strong on the Nexus 6. Along with the Note 4 and Galaxy S5, the Nexus 6 is one of only a handful of smartphones that feature 2x2 MIMO capability, which effectively doubles speeds with an appropriate router. In my tests, the Nexus 6 routinely eclipsed 20Mbps down and 10Mbps up from about 50 feet away from a 5GHz access point, but phones like the iPhone 6 Plus and Moto X struggled to break 15Mbps and hovered closer to 8Mbps down. Rounding out the connectivity options are Bluetooth 4.1, GPS, and NFC. The Nexus 6 had no issue pairing with an Era by Jawbone Bluetooth headset and GPS was fast and accurate in my tests.



“  
**Wi-Fi  
performance  
is particularly  
strong on the  
Nexus 6.**  
”





# Google Android 5.0 Lollipop

FREE



Six years into its lifespan, Android is finally getting a facelift. Lollipop brings a new, flatter look, much more detailed notifications, redesigned core apps, and performance improvements that address some important missing app categories on Android devices. It may still not have every feature you want—we really missed split-screen multitasking on the Nexus 6, for example, and the browser could use a refresh. But Android is likely to be the best mobile operating system for the most people, and Lollipop takes it to the next level.

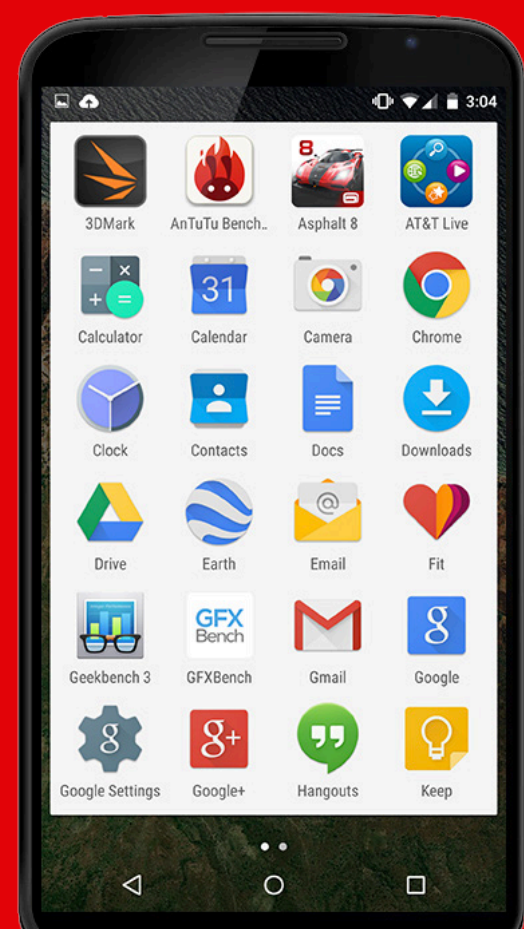
—Sascha Segan

## PERFORMANCE

The Nexus 6 features a quad-core, 2.7GHz Qualcomm Snapdragon 805 SoC with 3GB RAM. This is the fastest chip available for smartphones right now, and will be more than capable for the foreseeable future. The Nexus 6 crushed our synthetic benchmarks, posting top marks across the board for Android smartphones. Asphalt 8 played fluidly, even with graphics options maxed. Web browsing was smooth and responsive, and the Nexus 6 turned in one of the fastest SunSpider results we've seen for an Android smartphone. Even the usual bouts of lag and stuttering that occasionally afflict nearly all Android devices were few and far between on the Nexus 6. All that adds up to the most enjoyable Android experience I've had in recent memory.

In a battery rundown test, where we streamed a YouTube video over LTE with screen brightness set to max, the Nexus 6 lasted for 7 hours, 35 minutes. That's right on pace with the Note 4, which lasted 7 hours, 56 minutes. These are the two longest-lasting phones we've tested, handily beating the iPhone 6 Plus's 4 hours, 43 minutes, of LTE streaming. Anecdotally, I used the Nexus 6 all weekend as a secondary device for browsing the Web, taking pictures, and streaming music; it lasted from Friday night to Sunday morning before needing a charge. And for easy top-offs, the Nexus 6 supports Qualcomm's Quick Charge 2.0 wall adapters.

Of the 32GB of internal storage, 25.2GB is available to



users out of the box. It's an unsurprisingly light software load, but keep in mind there's no microSD card slot for expanding storage.

## CAMERA AND CONCLUSIONS

Nexus devices have never been known for their camera performance, which makes the Nexus 6's 13-megapixel camera all the more appreciated. Shots taken with the rear-facing camera look incredibly detailed, evenly exposed, and accurately rendered. This is a huge step up from the Nexus 5, and stands head and shoulders above recent phones like the Moto X. It doesn't have quite as impressive dynamic range as we saw with the Sony Xperia Z3, but the Nexus 6's image processing is more natural and true to life. Even under low light, the Nexus 6 preserves a lot of detail without succumbing to a ton of image noise. There's some graininess, especially with lighter tones, but details are still sharp and images look very good.

Video capture tops out at 4K and frame rates hold steady at 30 frames per second regardless of lighting. Optical image stabilization helps keep things steady and 4K footage looks sharp if you have a TV or monitor that supports it. (Rest assured, 1080p video looks excellent, too.) The Nexus 6 has one of the most impressive cameras on any Android device, joining the Note 4 at the top of the heap.

The Nexus 6 checks all the requisite smartphone boxes: insanely sharp display, incredible camera, long battery life, and unyieldingly fast performance in a well-built package. That earns it an Editors' Choice award in our book. More than anything, though, the Nexus 6 requires a leap of faith. Can you use a tablet-sized device as your primary smartphone? Many will understandably answer no. I like browsing full-desktop websites, catching up on my Netflix queue, and mastering pocket puzzlers and other diversions—all without needing to reach for another device. Do you need a 6-inch phone to enjoy all of that? Absolutely not. But picking a phone isn't about what you need; it's about what you want. I want a roomy digital canvas and I want to do more with fewer.



**EUGENE KIM**



# Apple Accelerates the Tablet's Vanishing Act



Apple's obsession with making its iPad tablets thinner and lighter every year is a philosophical statement. The computer should disappear; all that should be left is the app. That's Apple's genius, and something Android tablet makers have trouble matching. That's also what has made the iPad our top pick for large-screen tablets since the first model came out in 2010. The iPad Air 2 has a few key improvements over last year's version, a couple of which are especially meaningful: a powerful processor and the first multi-carrier SIM card we've seen in the U.S. So yes, the iPad Air 2 pushes the state of the art forward, and is a worthy Editors' Choice.

## PHYSICAL DESIGN

The iPad Air 2 is super slim. At 9.4 by 6.6 by 0.24 inches (HWD) and 15.4 ounces, it's the same height and width as the previous iPad Air, and just a teensy bit thinner and lighter. Just like the previous model, this one is backed with

## Apple iPad Air 2

\$499 and up



dun-colored metal (gold, gray, or silver) and fronted with glass (and either a white or black bezel, depending on the back color you choose). The Home button has been switched out for Touch ID, Apple's signature fingerprint sensor, which now lets you unlock the tablet, buy things online, or log into, say, your Dropbox account with a touch of a finger. Along the bottom panel, the two rows of small speaker holes have been replaced by one row of larger holes. On the right-hand side, the lock switch is gone.

The 9.7-inch LCD screen is the same 2,048-by-1,536 resolution with 264ppi as the inaugural iPad Air, but it has a new antireflective coating and it's been optically bonded. That means blacks look noticeably blacker and colors a little more saturated, although we're nowhere near super-saturated Samsung Galaxy Tab S levels.

Apple's existing \$39 iPad Air Smart Covers fit the Air 2 just fine. More rugged or tighter-fitting iPad Air cases may not fit, because the camera and volume rocker have both moved ever so slightly.

## NETWORKING AND THE APPLE SIM

Apple claims this iPad Air's Wi-Fi is twice as fast as the previous model's, with 802.11ac support running up to 866Mbps. The problem there is that almost nobody's Internet connection is 866Mbps. Still, against a 100Mbps corporate connection with a Meraki MR16 router, we saw pretty much the same (very good) speeds on both tablets.

The big advance here, though, is the Apple SIM—something you couldn't get in any earlier iPad model. If you buy a cellular iPad that's outfitted for AT&T, Sprint, or T-Mobile, you'll get a single SIM card that can be switched between the three carriers' prepaid plans (and EE, in the U.K.) in the iPad's settings. The SIM is removable just like any other SIM, and if you buy a Verizon model, you'll just get an ordinary, single-carrier Verizon SIM in the slot. The single iPad model sold in

## Apple iPad Air 2

**PROS** Very thin, light. Extremely fast processor. Best app design and selection of any platform. Cellular models can be switched between wireless carriers.

**CONS** Expensive. Battery life is just okay.





the U.S. supports all of the U.S. carriers' arcane bands except one (T-Mobile's 700MHz Band 12, which hasn't even been deployed yet). If Apple gets more global carriers on board, this could be a real boon for world travelers.

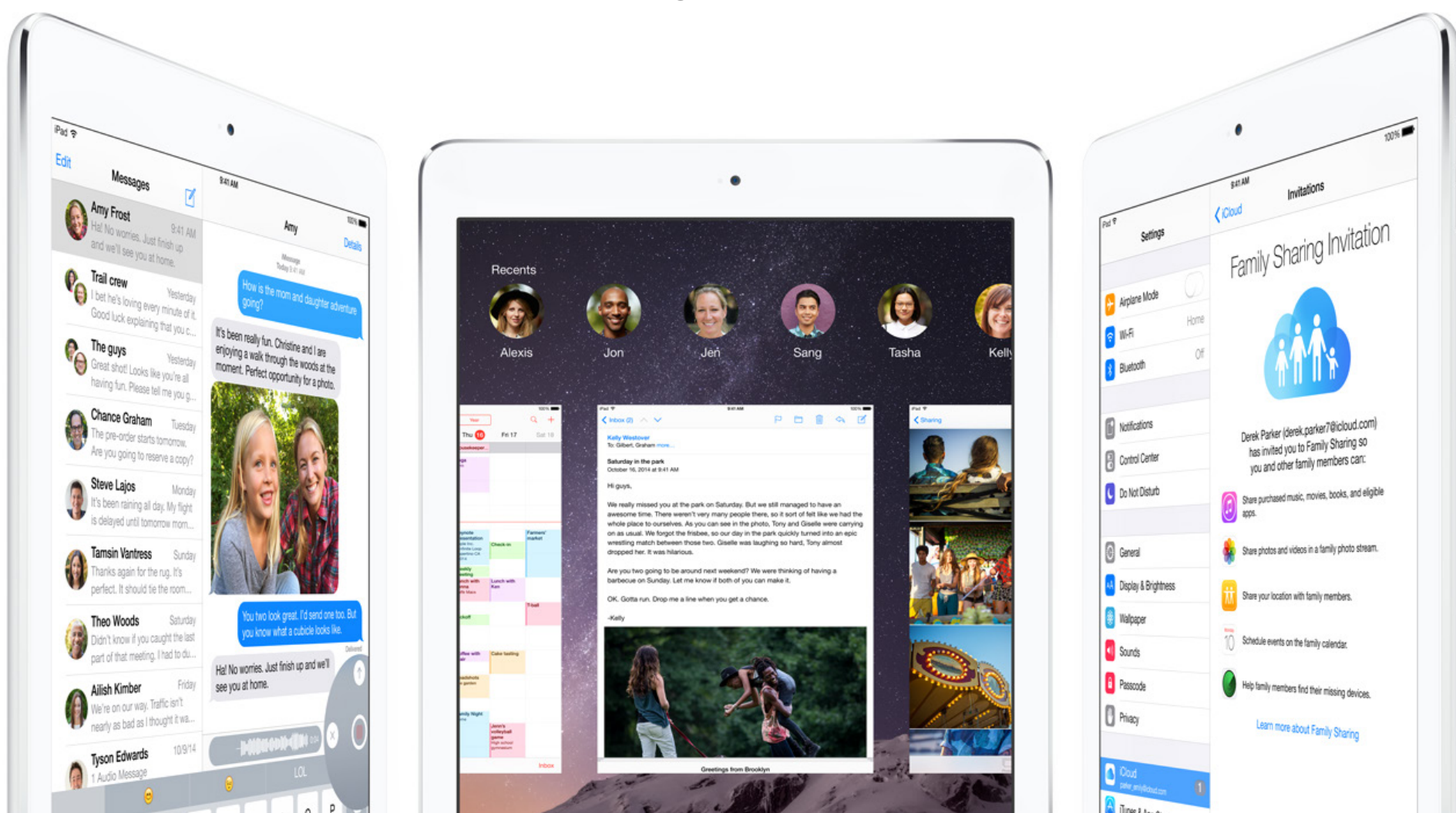
## EXEMPLARY APPS AND PURE POWER

The reason the full-size iPad keeps winning Editors' Choice awards is that there are whole categories of apps you'll find on iPads that don't exist for Android tablets. Or there are under-featured Android versions. Apple is way ahead on creative and productivity apps, for instance. There are Google apps and Amazon Prime Streaming apps. The iPad is the one tablet platform all developers, except the most extremely hacker-focused, consider a must.

Inside the iPad Air 2 there's a 1.5GHz, 64-bit Apple A8X processor, but don't listen to all of that gigahertz and bit width stuff, because Apple's processor design makes for faster performance than other competing devices. The Air 2 scored 63,264 on the AnTuTu system benchmark and 4,580 on the Geekbench 3 processor benchmark, as compared with around 30,000 and 2,863 for the iPad Air, and 35,000 and 2,770 for the Samsung Galaxy Tab S.

On the SunSpider browser benchmark test, the tablet scored an impressive 311.8ms, which is in the same class as the iPhone 6 and iPhone 6 Plus (360-380ms), and faster than we've ever seen Google Chrome operate on any Android device (the Tab S clocks in around 1,000ms).

You can see the power of the A8X with movie exports in iMovie. In testing, exporting a 2-minute movie to 720p took 19.5 seconds on the Air 2, as compared with 34 seconds on the original Air. Wow. But I didn't see such a



dramatic change in other productivity apps. Opening a giant spreadsheet in Microsoft Excel only dropped from 26 seconds to 23 seconds. And resizing 24 photos in the third-party Reduce app took 28 seconds on both the old and new tablets. The iPad Air 2 has a blazing engine, but third-party developers really need to open up the throttle.

The Air 2's super-slim build means endurance falls a bit short. The battery life of 5 hours, 15 minutes, when streaming a YouTube video over Wi-Fi at maximum screen brightness is about the same as with the previous generation (5:36). Cut the brightness in half, and you have Apple's estimation of 9 to 10 hours. Neither tablet can come anywhere near the Samsung Galaxy Tab S 10.5, which gives you two more hours of heavy use between charges.

## **CAMERAS AND MULTIMEDIA**

The iPad Air 2 now has an 8-megapixel camera on the back, joining its 1MP front camera. That's a jump up from the 5 megapixels on the iPad Air, and the main camera now supports 120-frames-per-second (fps) slow motion recording.

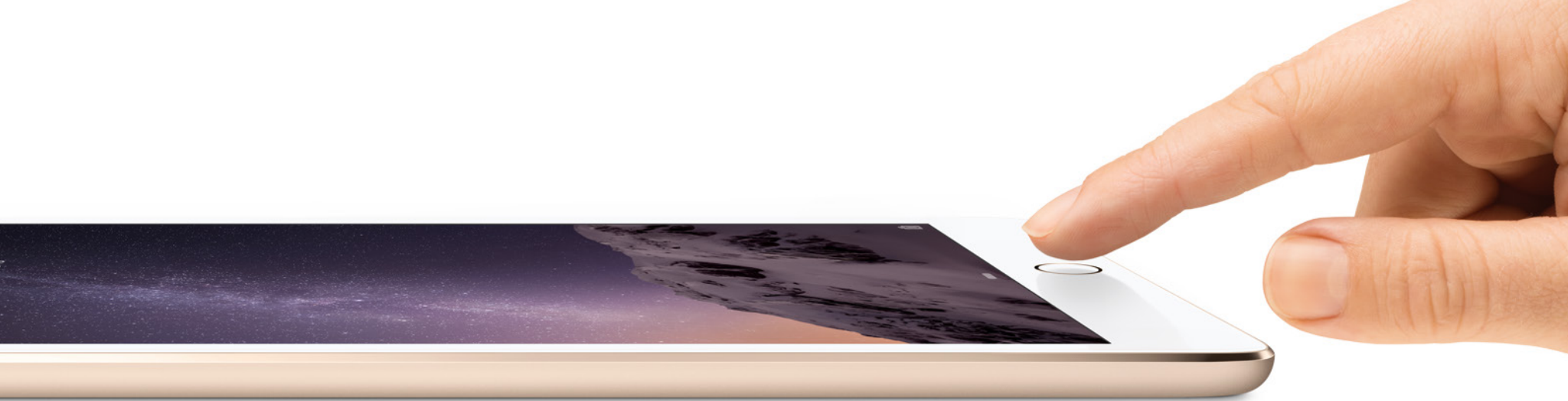
Apple has done a good job making sure the front camera takes sharp selfies, though it gets noisy in low light. The main camera has been significantly stepped up from the iPad Air's camera. HDR mode now works properly, balancing exposures and not blowing out bright skies. Low-light performance is not up to iPhone 6 standards—images are significantly grainier than on an iPhone, although fortunately they don't blur too badly because the shutter speed doesn't run lower than 1/15 second.

The video modes now record 1080p video with the main camera and 720p with the front camera, both at 29 to 30fps indoors and out. There's no optical image stabilization, but as I found in testing the iPhone 6 Plus, that can be a shibboleth that doesn't actually improve your image quality if it isn't part of a larger package of low-light improvements.

The iPad line has always made excellent music and video players, and Apple didn't mention that the iPad Air 2 is much louder than the previous iPad Air. It's easily







noticeable when they're playing the same content. I wouldn't call it room-filling, but it's certainly a step up. At maximum volume, sound doesn't distort, but the tablet vibrates noticeably.

## CONCLUSIONS

Because the iPad Air 2 is so expensive, it isn't the tablet for everyone. It comes in at \$499 to start, with 16GB of storage capacity; 64 and 128GB versions cost \$599 and \$699 respectively. And that's for Wi-Fi only. A cellular modem adds another \$130 to the price of each model.

But the fact remains that the iPad Air 2 is the best tablet for the most people. You probably don't need to replace your iPad Air—there's not enough here to merit the cash outlay—but the drop in weight and improvement in Wi-Fi performance, among other things, make replacing an older-generation iPad with an Air 2 a good idea. If you've never had an iPad, the Air 2 is a no-brainer. Unless you have a distinct reason for purchasing another tablet, for example because you really want to use Windows apps or you crave parity with the operating system on your phone, the iPad has more elegant apps than any other platform. And if you're just looking for "a tablet," it's still the default—and for good reason.

**SASCHA SEGAN**







**Lenovo  
Yoga 3 Pro**

\$1,299.99



## There Are Four Ways to Use This Top-Tier Two-in-One



Lenovo basically defines the two-in-one category with its Yoga line. Just look at the convertible-hybrid laptops coming out of competing companies like Dell, HP, and Toshiba, which all use some variation on the basic multimode design introduced with the first Yoga laptop back in 2012. Now, with the Yoga 3 Pro, Lenovo has come out with a new design that completely revamps the multimode hinge, swaps out the processor for Intel's new hyper-efficient Core M CPU, and packages it all in a very thin, very luxurious new chassis. It's a step forward in two-in-one design, and it's worth the high-end price.

### DESIGN

The biggest change with the Yoga 3 Pro is the hinge, which leaves behind the dual-axle design seen on the Yoga 2 Pro and the Yoga 2 13, and instead uses a watchband-inspired hinge that runs the length of the device. You can still flip



and fold the laptop as before, with the four usage modes of Stand, Tent, and Display, but now you can finally also lay the laptop out flat. More important, the new hinge lets Lenovo shave a few more millimeters from the device, making the 3 Pro the thinnest Yoga yet—and the first time a system of this size hasn't felt too large for tablet use. The sturdier hinge also results in a machine that better holds up to the many taps and touches to which it will be subjected in daily use.

The laptop measures 0.5 by 12.99 by 8.98 inches (HWD) and weighs just 2.6 pounds. The chassis is molded plastic, with anodized aluminum on its lid and underside, but the palm rest gets a soft-touch finish with a polka-dot texture. The laptop slims down even further with the new fanless chassis design, thanks to an Intel Core M processor that doesn't need the cooling fans Intel's usual laptop CPUs require.

The keyboard is also a bit thinner, but Lenovo has managed to retain most of the comfortable depth and smooth key movement seen on past iterations of the Yoga. That said, this might be as thin as a laptop can get while still having a regular keyboard, and even this one won't please all users—I know I was irritated by how shallow the key travel was. The keyboard does have backlighting, so typing in a dark room will be a little less difficult. The touchpad is also quite good, with all of the gesture controls and accurate tracking you might expect from a Lenovo product.

The 13.3-inch display, with its Quad-HD (3,200-by-1,800) resolution, features Gorilla Glass, which should protect it from scratches and cracks. The edge-to-edge glass only enhances the gesture controls and the touch-capable display offers full ten-finger tracking. This is one of the first times we've seen a convertible hybrid laptop with a better-than-HD-resolution display; it definitely helps justify the Yoga's premium price.

## Lenovo Yoga 3 Pro

**PROS** Extremely thin, fanless design. All-day battery life. Excellent-looking, better-than-HD display. Improved hinge design adds usability options.

**CONS** Performance doesn't match that of laptops using Core processors. Shallow key travel. Micro HDMI port requires adapter for use with standard HDMI cable.



## FEATURES

In addition to the new look, Lenovo throws a couple of unexpected curveballs in terms of the port selection, like a power connector that doubles as a USB port. The standard USB port is modified with a slight bump on one side that ensures the power cord is plugged in properly, and the port reverts back to standard USB whenever the DC power cable is disconnected. This has the dual effect of reducing by one the number of ports needed on the system without reducing total connectivity, and adds a new proprietary charger that you'll need to purchase through Lenovo. Additionally, the laptop offers micro HDMI for display output. The smaller port doesn't require the extra chassis thickness that a standard HDMI port does, but it will require some sort of adapter dongle or micro-to-full-size HDMI cable to run a connection out to a TV or projector.

Otherwise, the port selection is fairly standard, with two USB 3.0 ports, an SD card slot, and a headset jack. Along the right side of the laptop are several physical buttons for Power, Volume, and Screen Rotation. Inside, the system is equipped with 802.11ac Wi-Fi and Bluetooth 4.0. Given the extremely slim chassis, it's not a bad selection of features. The sleek design also dictates the storage options—the Yoga 3 Pro comes with a 128GB solid-state drive.

The system comes with some software preinstalled, including 30-day trials of McAfee LiveSafe and Microsoft Office 365, along with apps such as Skype, Zinio, Amazon, Evernote, and proprietary Lenovo apps that include cloud storage through Hightail, Lenovo Phone Connection, and Lenovo Photo Master. There's also something called Yoga Chef, which includes a regularly updated selection of recipes presented in a series of full-screen cards that let you swipe through the steps of cooking as you go, with the option to use Lenovo's webcam-enabled gestures to swipe through without touching the display. Another app

### OUT FLAT

Unlike previous models in the Yoga family, the Yoga 3 Pro can fold out completely flat, in addition to its traditional Stand, Tent, and Display usage modes.





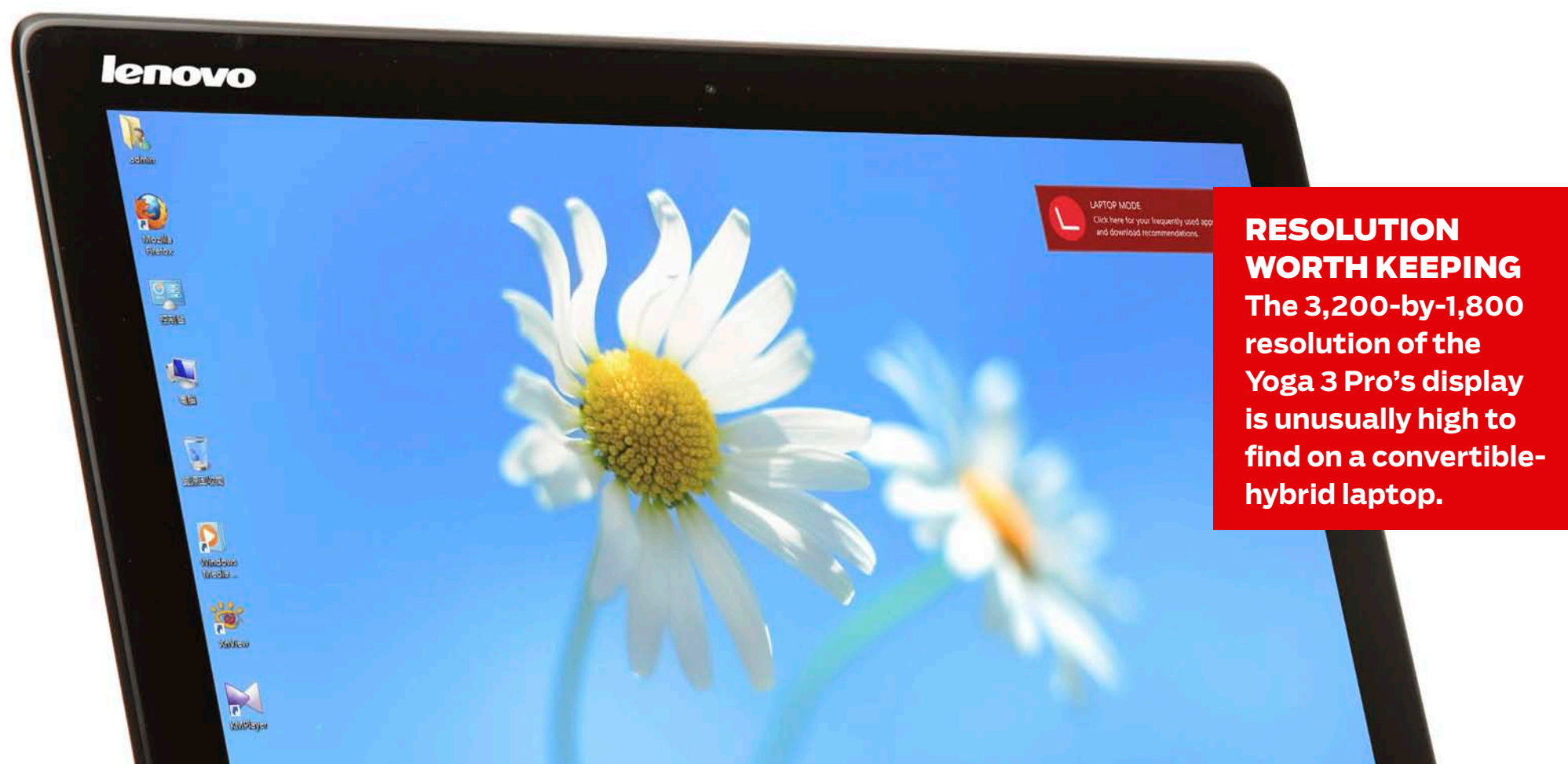
called Lenovo Harmony serves as a custom dashboard for your favorite apps and also a bridge between Windows' start interface and the desktop. Lenovo covers the Yoga 3 Pro with a one-year warranty that includes free depot and carry-in repairs.

## PERFORMANCE

The slim design of the Yoga 3 Pro is owed largely to the use of the new Intel Core M 5Y70 processor. With it you get 8GB of RAM, and that's all: Because it's soldered directly to the motherboard, there's no opportunity to upgrade the memory. And though the processor is far more powerful than the Intel Atom CPUs used in many Windows tablets, it doesn't favorably compare with the Intel Core i5 and Core i7 processors used in other convertible hybrids.

In the PCMark 8 Work Conventional test, the Yoga 3 Pro scored 2,094. The considerably less-expensive Toshiba Satellite Radius P55W-B5224, on the other hand, scored 2,757, thanks mostly to its Core i7 processor, while the Lenovo Flex 2 (2,693) and the HP Envy x360 15t (2,682) both have Core i5 CPUs. We noticed similar differences in performance in our Photoshop CS6 and Handbrake tests.

The graphics processing is all done by the Intel HD Graphics 5300, the Core M chip's integrated solution. Although integrated graphics are as a rule no competition for a discrete graphics processor, the performance is, again, lower overall than you would see with that of a standard Core i5 or Core i7 processor. For example, the Yoga 3 Pro scored 2,977 in 3DMark Cloud Gate, and 202 in Fire Strike Extreme. By comparison, the HP Envy x360 scored 4,012 in Cloud Gate and 227 in Fire Strike; the Toshiba Satellite Radius P55W-B5224 scored



5,089 in Cloud Gate and 295 in Fire Strike. The Yoga 3 Pro's graphics performance isn't bad, and will certainly be sufficient in tasks like Web browsing and streaming media, but if compared with one of these other systems, you would see it running slower.

The Core M CPU is essentially running at a lower clock speed to reduce power consumption and generate less heat. As a result, the Yoga 3 Pro has an edge when it comes to battery life, lasting an impressive 8 hours, 19 minutes, on our rundown test. That's almost 30 minutes longer than the closest competitor, the Toshiba P55W-B5224 (7:51), and is all the more impressive when you note that other competing convertible systems didn't even reach the 6-hour mark.

## CONCLUSION

If picking out the best system were purely about performance, I'd recommend you opt for one that costs less than the Yoga 3 Pro but has a full-size laptop CPU—the Toshiba Satellite Radius P55W-B5224, our Editors' Choice for midrange convertible-hybrid laptops, for example. But if portability and battery life are primary concerns, the Yoga 3 Pro is well ahead, thanks to the Core M and the slimmer design it allows. Factor in its excellent display, solid feature set, and striking design, and this is one of the best ultraportables we've seen. And our new Editors' Choice for high-end convertible-hybrid laptops.

**BRIAN WESTOVER**

“  
**Add in its  
excellent  
display, solid  
feature set,  
and striking  
design, and  
this is one  
of the best  
ultraportables  
we've seen.**  
”





**Dell XPS 18**  
(1820)

\$1,499



## This Portable All-in-One Is Also an 18-Inch Tablet



The Dell XPS 18 is a portable all-in-one desktop with a removable 18-inch full HD screen you can use like a tablet. Improvements over its predecessor, including a Haswell-based Intel Core i7 processor, mean that the XPS 18 has all the functionality you expect from a Windows PC—and it's sleeker than its rivals.

### DESIGN AND FEATURES

From the outside, not much has changed from the original Dell XPS 18. The newest iteration still measures 0.7 by 18.25 by 11 inches (HWD), but it's now lighter, at 4.87 pounds, making it easier to carry around when you need to. You can power it directly via the included AC adapter, or use the bundled stand,

which has a built-in magnetic power connector. The stand tilts from 10 to 70 degrees, letting you use the all-in-one in a variety of positions. Sadly, the power connector is the only port on the stand: It would have been nice to see DisplayPort, HDMI, or a USB dock. Also, if you have active pets or small children, please note that the stand doesn't lock down the desktop, so this is a feature you'll want to use with caution. It's a little unusual, because most stands are either bolted on or have locking latch mechanisms. This makes the system easier to grab on the go, but it also can be knocked over inadvertently.

Without the stand, you can use the XPS 18 as a tablet, flat on a table or held in your hands. Two polycarbonate kickstands on the back let you use the tablet upright or angled horizontally on a table for touch games or typing on the on-screen keyboard. The kickstands seem durable enough for daily use, but they can pop off by accident (though they can easily be reattached).

The 18.4-inch In-Plane Switching (IPS) display has a 1,920-by-1,080 resolution and ten-point touch capability. It's clear and bright, even in a fully lit room. There's an adaptive screen brightness setting you can disable to get full brightness, but the display is pleasant to use right out of the box. Touch sensitivity is good enough that you should be able to use the XPS 18 as a full-time Windows 8.1 PC on its own if you have to.

The bundled wireless keyboard and mouse are already paired via Bluetooth, which is a boon, as the XPS 18 only has a headset jack, an SD card reader, and two USB 3.0 ports for connectivity. That's well short of midrange all-in-one desktops like the Editors' Choice Dell Inspiron 23, but those systems aren't all portable. Other portable desktops, like the Lenovo Flex 20 and the HP Rove 20, also only have a few USB ports, so it's inherent in the category. The HP and Lenovo systems both lack SD card slots, though. It would be nice to have HDMI-in or -out connectors, but if you absolutely need

## **Dell XPS 18** **(1860)**

**PROS** Good battery life. Portable around the house. Thinner, lighter than previous portable all-in-one PCs. Bundled charging stand has a wide range of tilt. One-year McAfee Security subscription.

**CONS** Stand lacks USB connectivity. Limited ports. Kickstands are flimsy.





external screen compatibility the XPS 18 will work with a WiDi adapter. The speaker output is loud enough to fill a standard-size bedroom, so you won't be straining to hear dialogue when watching Netflix.

The 256GB solid-state drive (SSD) is the system's boot drive, and you can supplement that with cloud storage, the SD card slot, or an external USB 3.0 drive. Quite a few software packages came preloaded on the Start screen, including Adobe Revel, Amazon, Bing Translator, Dropbox, Flipboard, Kindle, Pocket Cloud, Stage Light, and others. Budget some time to delete the ones you don't expect to use much (or at all).

The XPS 18 also comes with a one-year basic warranty and a one-year McAfee Security subscription.

**If you absolutely need external screen compatibility the XPS 18 will work with a WiDi adapter.**



## PERFORMANCE

An Intel Core i7-4510U ultrabook-class processor with integrated Intel HD Graphics 4400 powers the XPS 18. Combined with 8GB of memory and the aforementioned SSD, the system is well equipped for day-to-day use. We don't have comparable test scores from last year's portable all-in-one desktops, so we decided to pit it against some standard all-in-one desktops to measure performance. It scored a very good 3,587 points on the PCMark 8 Work Conventional test. The midrange Acer

## POP A TABLET

**When disconnected from its base, the Dell XPS 18's 18-inch screen may be used as a Windows 8.1 tablet PC.**



Aspire U5 and the Acer Aspire Z both lagged behind the XPS 18 on the same test. The more business-oriented Dell OptiPlex 9030 Touch was closer, but the XPS 18 still prevailed.

On multimedia tests like Handbrake (2 minutes, 51 seconds) and Adobe Photoshop CS6 (4:19), the XPS 18 was a little slower than the Aspire U5 and Aspire Z, but not by much. This is likely because the Acer all-in-ones use higher-powered desktop-class processors with faster clock speeds. That said, the XPS 18 is certainly speedy enough to keep the hobbyist in your family happy.

Battery life is the best in its class, lasting 5 hours, 13 minutes, on our rundown test. Older portable all-in-ones, like the HP Rove 20 (3:53), the Lenovo Flex 20 (3:44), and the Sony VAIO Tap 21 (3:00), could barely manage more than a few hours. Five hours is enough to watch both Marvel's *The Avengers* and *Guardians of the Galaxy* and still have time left over to stream a bunch of YouTube videos.

Though you likely won't be carrying the Dell XPS 18 with you on your daily commute, the system is certainly a worthy companion for moving around the house. Its battery pack gives you a healthy amount of rundown time, it's light enough for you to carry, and it will work anywhere there's enough space to put it down. Older iterations of portable all-in-one desktops had promise, but were ultimately hobbled by bulk or short battery life. The latest XPS 18 has solved both problems; as such, it's our first Editors' Choice for portable all-in-one desktop PCs.

**JOEL SANTO DOMINGO**



**Apple Mac mini**

\$499



# Affordable Apple mini Still Packs a Big Punch



The Apple Mac mini is the least expensive new Macintosh computer you can buy. Like its previous iterations, it has a sleek aluminum unibody chassis, and is one of the more compact desktop PCs on the market. If it now costs less than it used to, it still has all the quality and OS X integration we've come to expect. Its convenient wired and wireless connectivity, OS that hands off to Apple devices in your pocket, and reasonable price make the Mac mini the small-form-factor (SFF) consumer desktop to beat.

## DESIGN AND FEATURES

The exterior of the Mac mini is mostly unchanged from that of the previous model we tested two years ago. The matte-aluminum chassis measures 1.4 by 7.7 by 7.7 inches (HWD), almost small enough to disappear behind a large-screen display or HDTV. SFF competitors like the Maingear Spark and the

Zotac Zbox CI320 nano Plus may be physically smaller, but both of those Windows PCs require an external power brick that can clutter your workspace. The Mac mini has its power supply built in.

Connectivity options are plentiful, including an Ethernet port, an HDMI port, an SDXC card reader, two Thunderbolt 2 ports, and four USB 3.0 ports. For wireless connectivity, there are 802.11ac and Bluetooth 4.0, as well as Apple's Continuity and Handoff features in OS X Yosemite, which let you seamlessly move between the Mac mini and iOS devices, such as iPads and iPhones.

Absent here is the previous mini's accessible memory slot. The chassis is effectively sealed now; the bottom panel is much harder to remove, and security screws prevent you from going further. The RAM is soldered to the motherboard, so you won't be able to upgrade it later, even if you're persistent in opening the case. You'll have to choose extra memory when you order the system, which increases both the cost and delivery

## Apple Mac mini

**PROS** Affordable. Plenty of connectivity options. Comes with iWork, iLife preloaded.

**CONS** No upgradable parts. Display, mouse, keyboard must be bought separately. Only 4GB of RAM, and pre-purchase upgrade options are expensive.



times. In the 2012 Mac mini, you could add 4GB more memory yourself for \$30 to \$50, which is far less expensive than the \$100 Apple is now charging for a configuration upgrade from the default 4GB up to 8GB. The upgrade to 16GB is even more expensive: \$300. The 500GB, 5,400rpm SATA hard drive can also be upgraded to a 1TB Fusion Drive for \$250. Note that as

## NICELY PACKED

The Apple Mac mini sports plenty of ports for connecting peripherals and other devices. It even has a built-in power supply.



with previous Mac mini models, a display, keyboard, and mouse are not included.

Bundled with the Mac mini is Mac OS X Yosemite and apps like iPhoto, iMovie, and GarageBand. It also comes with the Keynote, Numbers, and Pages iWork apps. These programs don't require a paid subscription, so the mini is better equipped than Windows PCs that come with a free one-year subscription to Microsoft Office 365.

## PERFORMANCE

Inside the mini there's a fourth-generation 1.4GHz Intel Core i5-4260U, a low-voltage processor. It performed adequately on our multimedia benchmark tests, including Handbrake (3 minutes, 13 seconds) and Adobe Photoshop CS6 (5:27). That's faster than the AMD-A8–equipped Maingear Spark (6:37 in Handbrake, 9:54 in Photoshop), and roughly equivalent to other inexpensive

“As with previous Mac mini models, a display, keyboard, and mouse are not included.”



compact systems, such as the Acer Aspire AXC-604-UR11 (4:37 in Handbrake, 4:41 in Photoshop). That said, the full-voltage Intel Core i5-4440 processor and extra system memory in the Gateway DX4885-UR2D make that system a lot faster (1:30 in Handbrake, 3:54 in Photoshop).

The integrated Intel HD Graphics 5000 system is good enough to help the Mac mini score 17 frames per second (fps) on the Heaven test and 18fps on the Valley test, both at medium quality. This means you'll be able to play browser-based 3D games and older titles, but you may have trouble running newer or more demanding games. The Maingear Spark is much better at 3D gaming, thanks to a discrete AMD Radeon R9 M275X GPU. The Mac mini is a whole lot quieter, however.

The latest Apple Mac mini has more competition than its predecessor did, but it still manages to hold its own and then some. It's better connected than the Acer Aspire AXC-604-UR11 and much more cost-effective than the Polywell i2304-i5. It's much less expensive than the gaming-oriented Maingear Spark and performs better on the multimedia benchmark tests. Its only true drawback is the lack of internal memory expansion, and that's something that's becoming commonplace on Macs and Windows PCs. For its combination of outstanding build quality, connectivity, and price, the Mac mini earns our Editors' Choice award for consumer-oriented SFF desktops.

**JOEL SANTO DOMINGO**



**SMALL MAC,  
SMALL PRICE**

The Mac mini may be tiny, but thanks to its strong build quality and connectivity options, it delivers enormous value.





**Lenovo  
ThinkPad  
W540**

\$2,171.99



## A Mobile Workstation That Keeps Colors Crisp



The Lenovo ThinkPad W540 is a mobile workstation for demanding users. In addition to high-performance components, it also has something unique: a self-calibrating 3K screen, which is important for artists who need to make sure that the colors of the images they see on their screen are accurate. The screen and underlying technology are enough to guarantee the ThinkPad W540 our new Editors' Choice award for mobile workstations.

### DESIGN AND FEATURES

Like other ThinkPads, the W540 is a dark-gray clamshell laptop, measuring 10 by 15 by 1.1 inches (HWD) and weighing 5.67 pounds. Because it has so much space to work with, the system sports a backlit keyboard with full numeric keypad, a TrackPoint pointing stick, and a large, one-piece floating touchpad

similar to what we've seen on current ThinkPads. The touchpad has some problems with palm rejection and will take some getting accustomed to if you've been using ThinkPads for a decade or more. The keyboard is solid, with gently scalloped keys that boost typing feel. A biometric fingerprint reader on the palm rest lets you log into your company's network resources with a single swipe (if your IT department has that setup, of course).

The In-Plane Switching (IPS) screen is the W540's centerpiece. It measures 15.6 inches and has a WQHD (2,880-by-1,620), or 3K, resolution. That's technically lower than the 3,200-by-1,800 resolution QHD+ touch screen on the Dell Precision M3800, but the Lenovo workstation shows its mettle in other ways. The screen rates at 300 nits, which means that you can work in a sunlit room and still have no worries viewing the project you're working on.

That brings us to the W540's unique feature: It comes with an integrated X-Rite Pantone color calibrator. The calibrator uses a camera built into the palm rest to view and adjust the color balance on the system's screen. This is a huge plus if color accuracy is vital for your work and you need constant calibration, as you won't have to carry an external calibrator around with you. We recommend calibrating the screen right when you take it out of the box, and the X-Rite utility can prompt you to recalibrate the screen regularly.

The W540 doesn't have a touch screen option, but there is an antiglare coating on the display's surface. The ensuing matte finish

## Lenovo ThinkPad W540

**PROS** Bright, self-calibrating 3K screen. Incredible detail and color on display. Removable battery with 6 hours of life. Good connectivity, security options. ISV certified.

**CONS** No touch screen option. Quirky touchpad. Could use more storage, memory.







“  
**The W540's  
screen is as nice  
or nicer than  
the one on  
Apple's Retina  
display—  
equipped  
MacBook Pro.**  
”

tends to make images appear dull, but the color calibrator compensates for it. The W540's screen is as nice or nicer than the one on Apple's Retina display—equipped MacBook Pro, even though the Mac has a glossy screen, and it compares well with the display on HP's Editors' Choice mobile workstation, the ZBook 14.

You'll need a screwdriver to make hardware changes to the W540, including popping out the ultrabay DVD drive for something else, such as an additional hard drive or battery. That's notable because ultrabay drives on other ThinkPad laptops easily pop out with a simple flick of a switch. Internal access is even easier on the HP ZBook 14, as it has a tool-less back panel.

Under a large access door you'll find three free DIMM slots to supplement the 8GB standard memory (up to 32GB maximum). There's also a 2.5-inch, 256GB solid-state drive (SSD), which is kind of a small capacity if you work with large data sets or 4K video. You can always increase storage by adding an internal M.2 SSD, swapping the 2.5-inch SSD with a larger-capacity SSD or hard drive, swapping the DVD drive with an ultrabay hard drive, or plugging in an external Thunderbolt or USB 3.0 drive. Those are much more flexible options than on any laptop we've seen before.

Thunderbolt is built in, a rarity among Windows laptops. The last one we saw with a Thunderbolt port is the HP ZBook 15, which we'd consider a prime competitor due to its configuration, pricing, and its HP DreamColor display. The W540 also comes with an Ethernet port, an ExpressCard reader, a headset jack,



**LOOKS CAN BE DECEIVING**  
The Lenovo ThinkPad W540 resembles many other Lenovo laptops, it's distinguished by a high-resolution screen with a built-in color calibrator that will ensure your images always look correct.

an SD card reader, two USB 2.0 ports, two USB 3.0 ports, and a VGA port. There's a docking port on the bottom for connecting to a docking station, and Bluetooth and 802.11ac Wi-Fi for wireless connectivity. A SIM card slot under the 99.9-watt removable battery connects to the included Sierra Wireless 7355-Gobi 5000 4G LTE WWAN card. You'll have to provide your own SIM card (with its data plan) separately. The system comes with a three-year warranty, including pick-up and return service.

## PERFORMANCE

The W540 is equipped with an Intel Core i7-4800MQ processor with internal Intel HD Graphics 4600, plus an ISV-certified 2GB Nvidia Quadro K2100M video card. These helped the system score an excellent 3,105 on the PCMark 8 Work Conventional benchmark test, which is a better score than we saw from the Panasonic Toughpad 4K Performance and the Toshiba Satellite P50T-BST2N01. The Dell Precision M2800 (3,181) just edged out the W540. Though not a gaming-oriented system, the W540 placed near or at the top of the results board on our 3D tests, including 3DMark, Heaven, and Valley.

The results are similar on the Handbrake video encoder test. The W540's time of 1 minute, 20 seconds, is only a couple of seconds behind the Dell Precision M2800 and the Retina display–equipped 15-inch MacBook Pro. The system led this same group at the CineBench R15 test (637), as well as the Adobe Photoshop CS6 test, with a short 3:18 time on the test script. That's half the time it took the HP ZBook 14 to complete the same test (6:28). To wit, the W540 is a multimedia creation powerhouse.

Battery life is also excellent, at 6 hours, 13 minutes, on our rundown test.



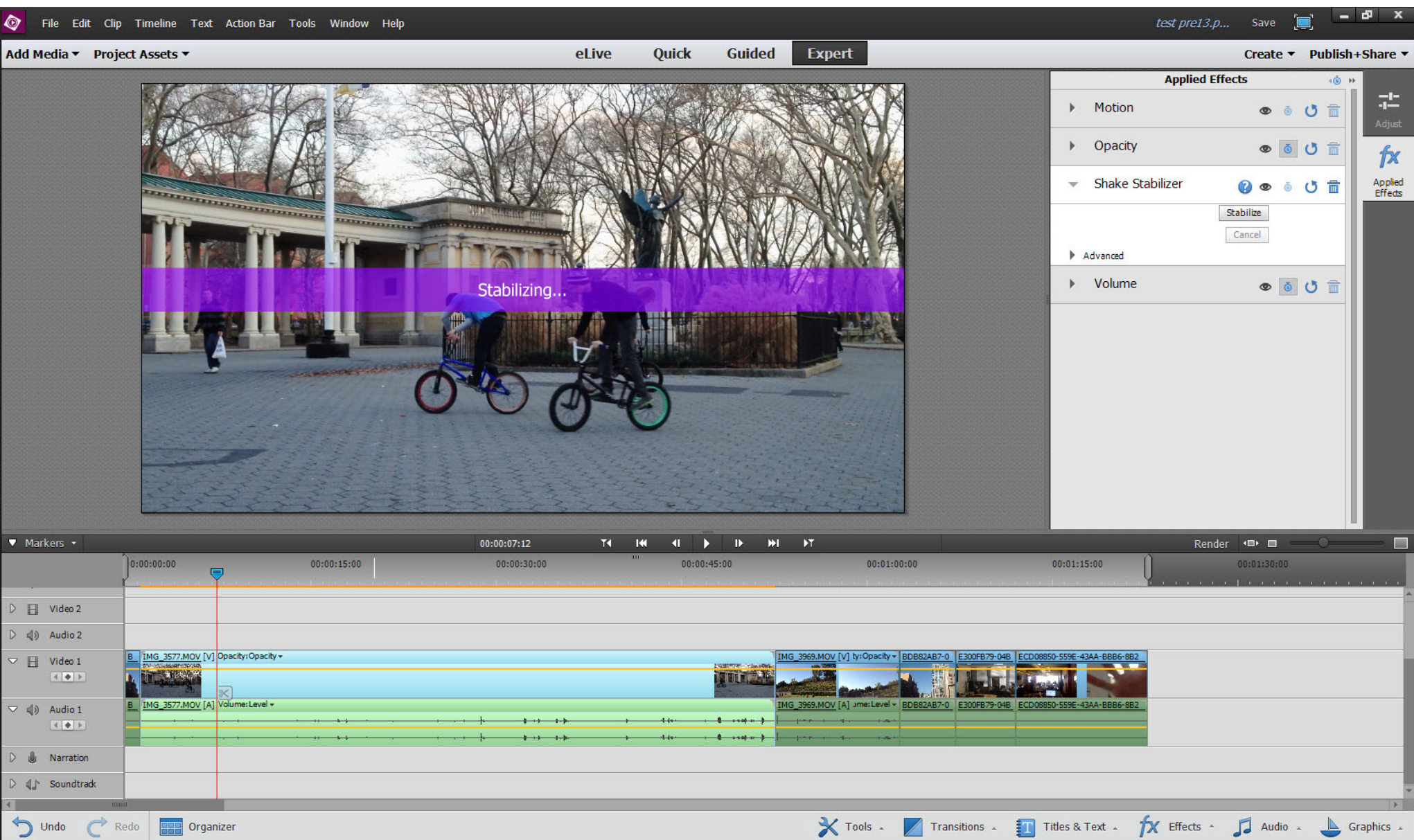


“  
**The Lenovo  
ThinkPad  
W540 has  
both beauty  
and brawn.**  
”

That's within 10 minutes of the Dell Precision M3800 and the HP ZBook 14, 2 hours better than the Dell Precision M2800, 2 and a half hours better than the HP ZBook 15, and more than 4 hours better than the semiportable Toughpad 4K Performance. The only competitor that outlasts the field is the MacBook Pro, which endured on almost 9 hours. Clearly, the W540's battery life is better than acceptable, plus its removable battery is easier to swap out than the hidden one on the HP ZBook 14 or the sealed battery in the Dell M3800.

The Lenovo ThinkPad W540 has both beauty and brawn: the former in its self-color-calibrating screen, the latter in its top-notch performance. Its battery life and performance exceed the expectations of most mobile workstation users, and aside from a quirky touchpad, the system looks and feels like a traditional Lenovo ThinkPad. Throw in a lower price and the the ThinkPad W540 leapfrogs over the HP ZBook 14 as our Editors' Choice for mobile workstations.

**JOEL SANTO DOMINGO**



# Feature-Rich Video Editing, But With a Few Missteps

**T**he focus of Premiere Elements 13, the latest version of Adobe's enthusiast-level video editing application, is on tools that help you make better digital movies with the program's existing features. These include templated storyboards, instant movies, and more Guided Edits. The new Elements Live mode offers tutorials, product news, and creative inspiration and tips from pros. As for actual new features, the program includes improved video stabilization—terrific for action-cam footage. But some key deficiencies with Premiere Elements have not yet been corrected.

**Adobe Premiere Elements 13**

\$99.99





## THE BASICS

Premiere Elements requires at least Windows 7 or Mac OS X 10.8, and is sold either individually for \$99 or bundled with Photoshop Elements for \$149. If you're upgrading from a previous version, those prices drop to \$79.99 and \$119.99. A free trial gets you 30 days of full-featured program use, but your videos will be adorned with a watermark.

You'll need a decently powered machine with a multicore CPU, and at the very least 2GB of RAM and 5GB of hard drive space available (though I'd recommend more in both cases). On Windows Premiere Elements requires SSE2 support on the CPU and a DX9 or DX10 video card with at least a 1,024-by-768 display.

Premiere Elements' interface remains largely unchanged in version 13, with the exception of the new Elements Live mode as the first option on the top, joining Quick, Guided, and Expert modes. Elements Live provides easy tips, tricks, and suggestions for improving your video creations, though a separate mode seems extreme for this kind of feature, and its buttons aren't customizable the way Lightroom's are.

As on previous versions, the separate Organizer application is where you import, rate, keyword tag, and share media online, as well as output your work to

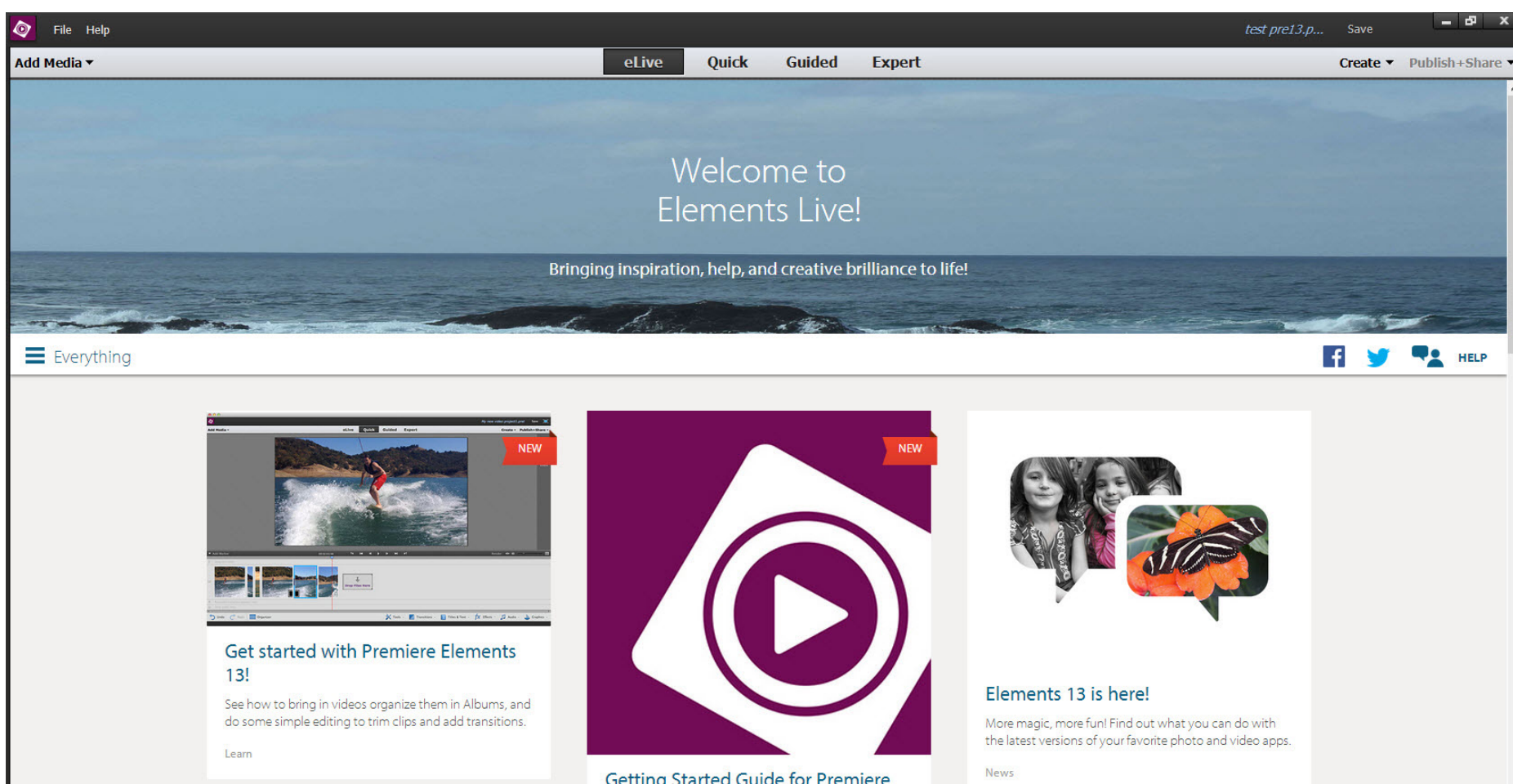
## Adobe Premiere Elements 13

**PROS** Clear, simple interface. Online galleries, mobile viewing with Revel service. Guided Edits ease both basic, advanced edits. Loads of video tweaks, effects. Good text, audio editing tools. Solid control over stabilization.

**CONS** No support for 4K, multicam, 3D editing. Slower performance than some competitors.

### ELEMENTS LIVE

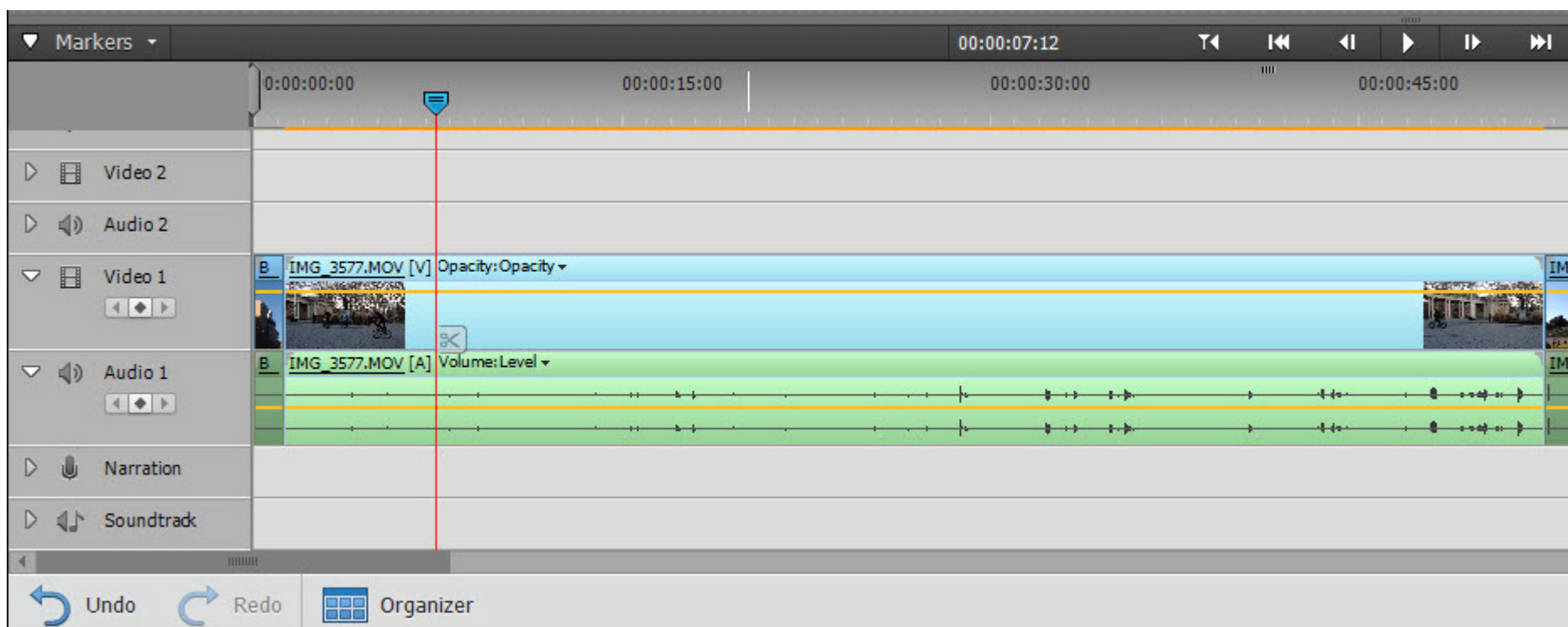
Does your creativity need a kick-start? The new Elements Live will provide tutorials, suggestions, product news, and more.



DVDs and other project formats. Premiere Elements also integrates with Adobe's online media syncing service, Revel, which transcodes media for whatever device will be used for viewing the content; you get 2GB free storage for use with this feature.

Interface responsiveness has improved in Premiere Elements 13. As with most consumer video editing software these days, the program creates a lower-res preview version of your clips for immediate quick performance. You can hit the Render button at any time to see the full-resolution movie, but this can take a while, depending on your video length and resolution; you can't render just one clip or section, you have to do the whole movie. Somewhat helpfully, a line above the timeline shows which clips are rendered: green for done, and yellow for not ready. Despite all this, I still experienced video stutter when working with multiple overlay tracks.

**If you're planning to shoot in 4K, you're out of luck with Premiere Elements 13.**



If you're planning to shoot in 4K, you're out of luck with Premiere Elements 13, but that's really a pro-level format that requires enormous computing resources—you'll need to look at alternatives such as CyberLink's PowerDirector for that kind of functionality. 3D video clips are also unsupported in this version, as is multiple-camera editing.

#### **EASY INTERFACE**

**It remains a snap in Premiere Elements to see how your video and audio clips and text fit together to form a final product.**



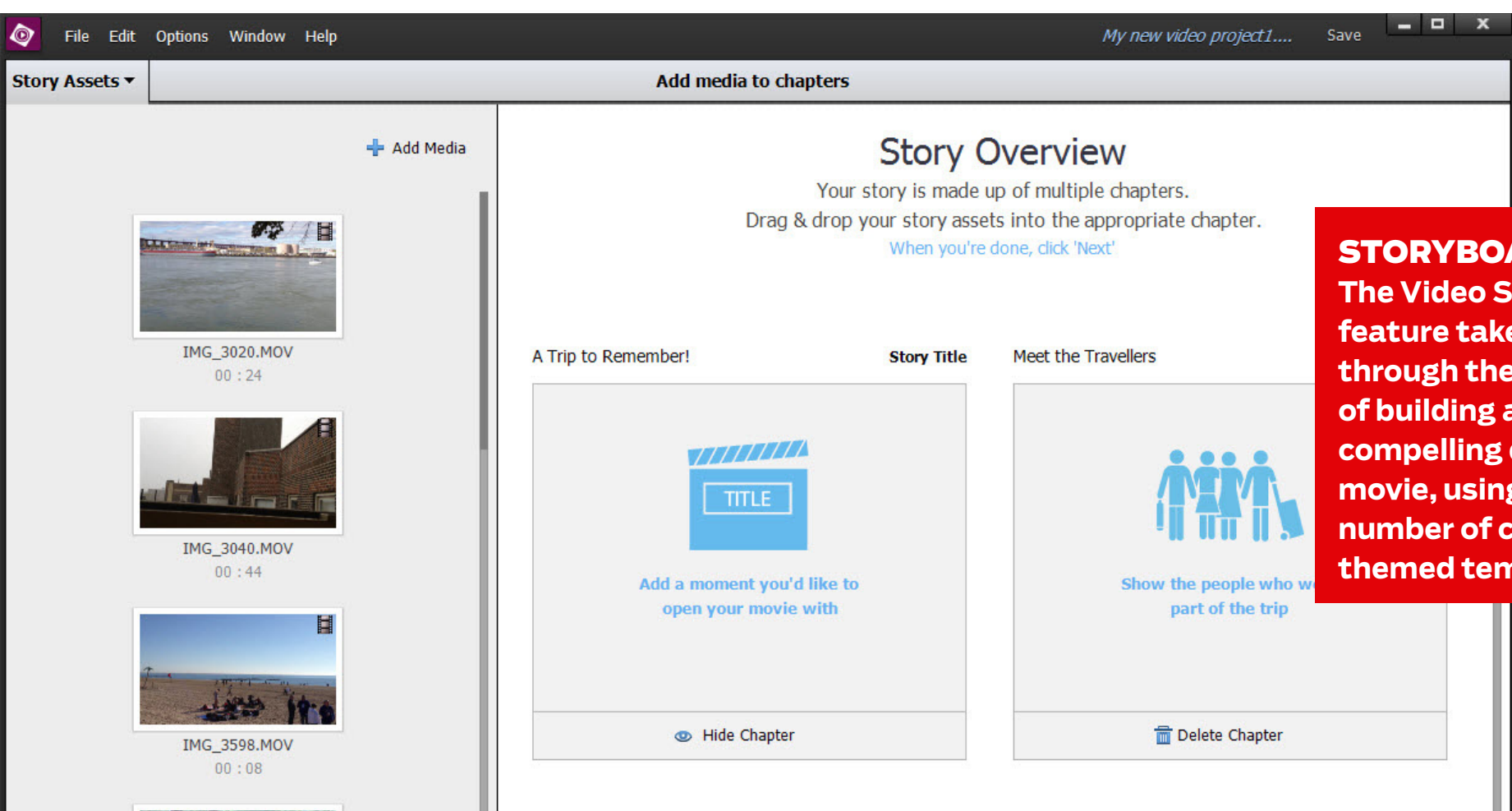
## NEW TOOLS

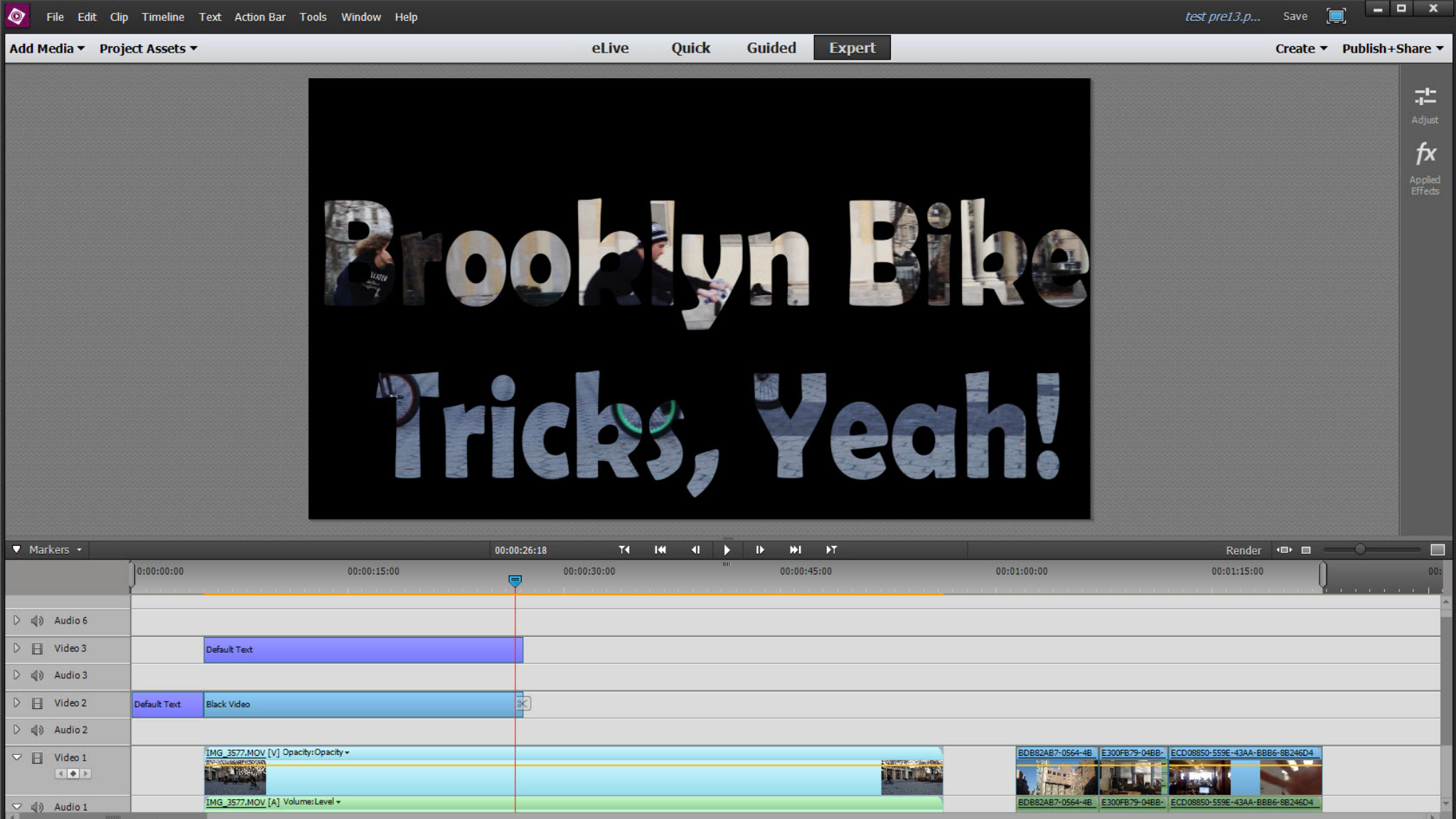
The new Guided Edit tools hand-hold you through the steps in creating effects that are more complex than just a button press or slider adjustment. The guides display tooltips that tell you exactly what to do, and even prevent you from clicking Next until you've completed a step.

The new video title masking lets you show moving video behind your text titles; it's a pretty cool effect, for sure, and one that's easy to customize. And Effects Masks let you apply an effect to a selected area in a video, for example, when you want to highlight a person—though it can't track the motion of a selected object, and you can't invert the selection to apply the effect to everything except your selection.

A couple of Premiere Elements 13's most important new tools concern the overall construction of your digital movies. With Video Story, you add content to your movie using predetermined shot types and storyboards (General, Birthday, Graduation, Travel, and Wedding). With Favorite Moments you can easily chuck dull parts of video footage, and can even do so automatically. Even more ahh-inspiring is the Auto Mark Moments button, which saves you having to make all those troublesome decisions about what's good, though because it mostly only keeps moments where the camera is moving it's hardly a substitute for a human video editor.

Premiere Elements 13 also delivers improved video stabilization in Quick or Detailed mode, the latter letting you adjust parameters such as smoothness, edge feathering, and more. It's a powerful tool, but you'll need to exercise patience when applying it to long clips.





## LOTS TO LIKE, BUT NOT ENOUGH

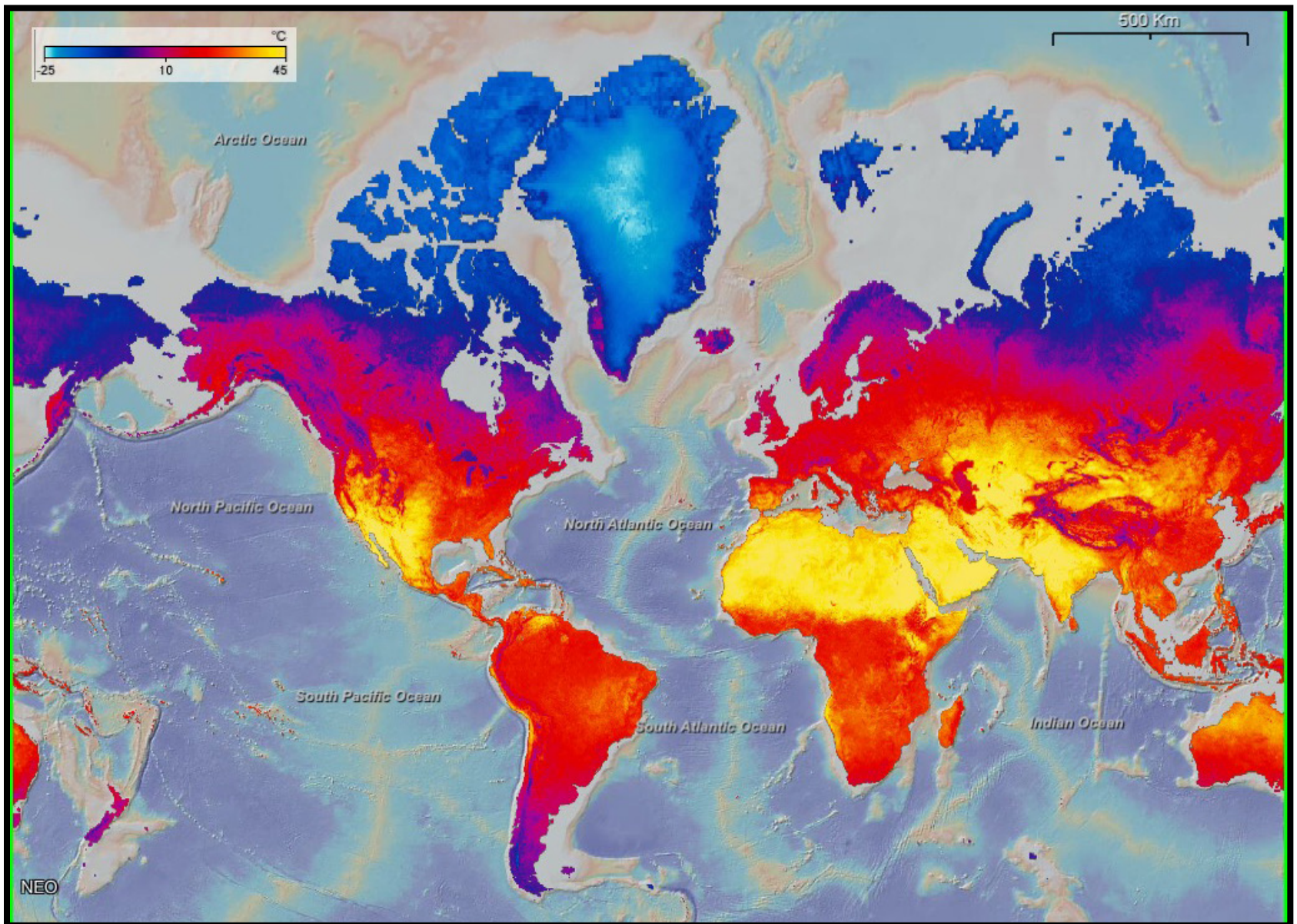
All the effects you've come to expect in a consumer video editor are still here in Premiere Elements 13—a wealth of transitions, picture-in-picture, chroma keying, scaling, opacity, and even keyframe-timed effects. There are also attractive themed titling options and text tools; a powerful audio editor with a vast collection of available musical backgrounds and sound effects; and publishing and sharing options for uploading in SD or HD to Facebook, YouTube, Vimeo, or your own Private Web Album in Revel. But performance-wise, Premiere Elements lags PowerDirector when it comes to rendering your project.

If you like the integration of the Elements Organizer and Photoshop Elements, Adobe Premiere Elements 13 is a decent choice. And its many guidance features provide a good education for creating compelling shows from your clips. But because it's slower and less powerful overall than PowerDirector, that program remains our Editors' Choice.

**PREMIERE IS NOT ALWAYS PREMIER**  
Depending on your needs, other video editors may offer better speed and capabilities than Premiere Elements 13.



# Our Favorite Apps



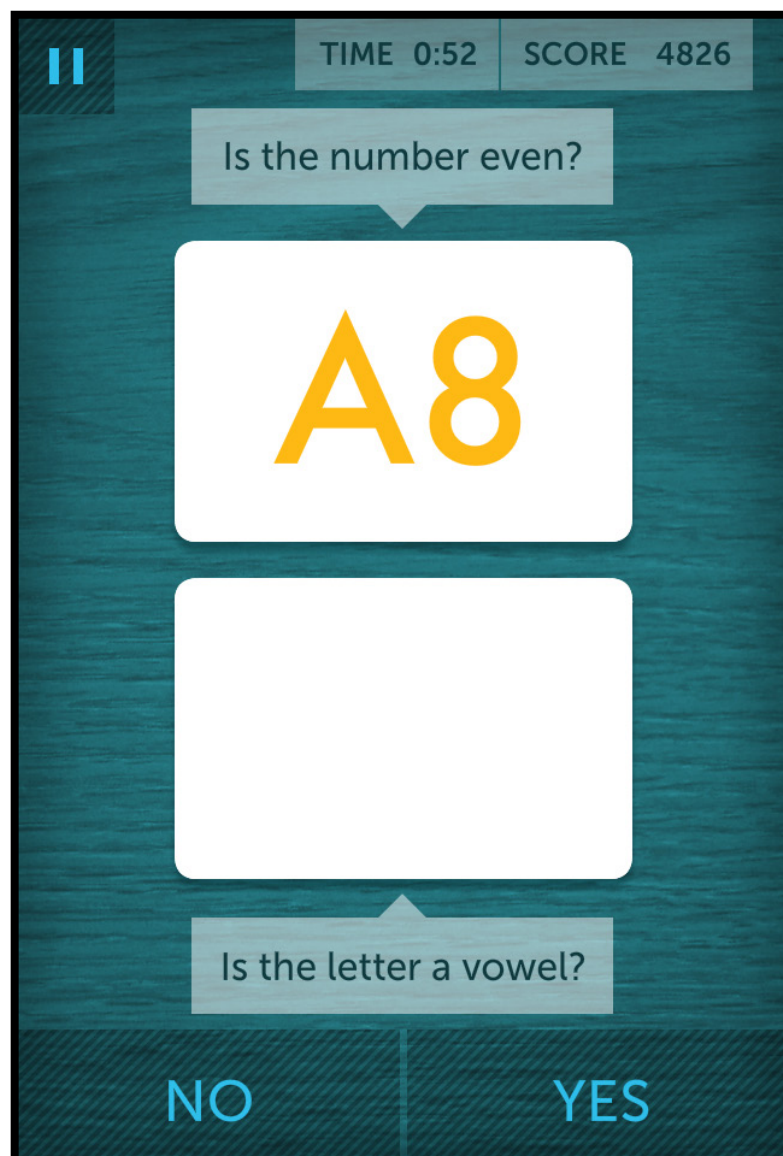
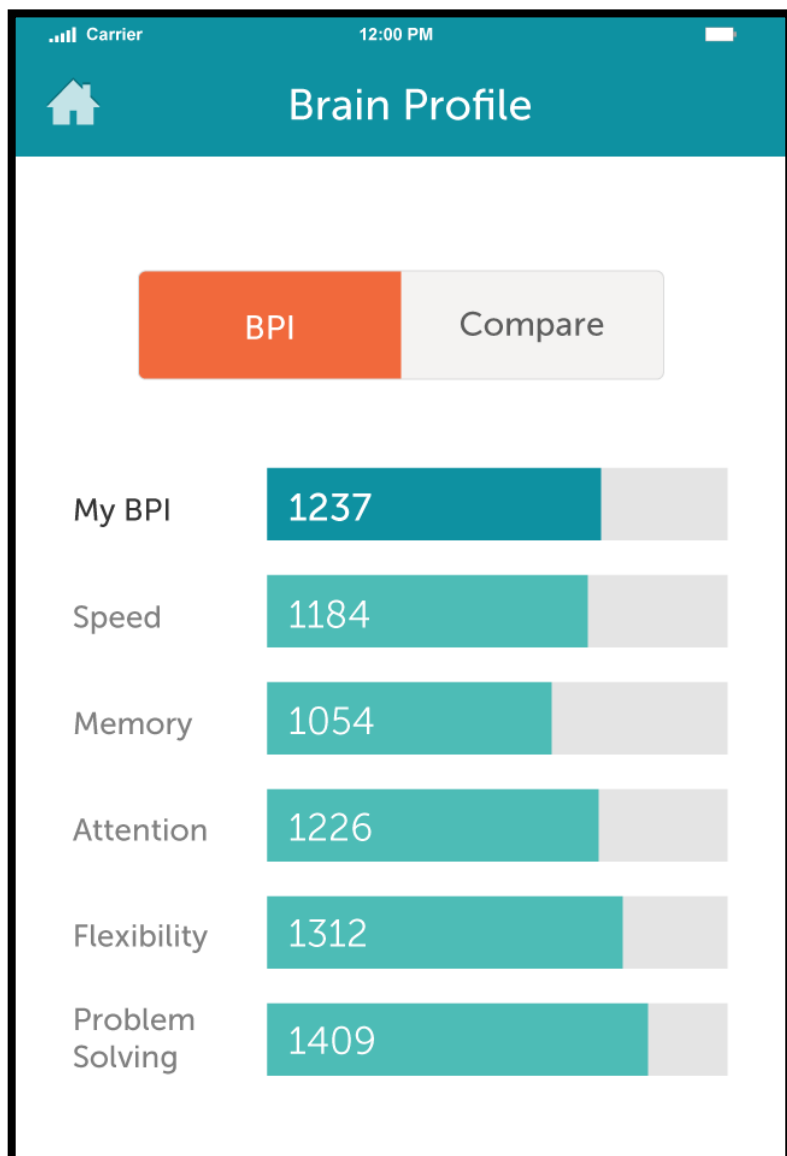
## EarthObserver ios \$0.99



With EarthObserver, you can view and explore our planet from your mobile device's screen. This educational app provides hundreds of world, polar, and regional maps showing a wealth of data across multiple disciplines (geography, geology, oceanography, ecology, meteorology, and more). Though the data varies widely in timeliness, EarthObserver is a good tool for researchers, teachers, and students, and is worth a look by anyone who's curious about the world we live in.



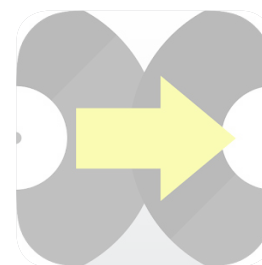
# Our Favorite Apps



**Lumosity** Android, iOS FREE (Subscription optional)

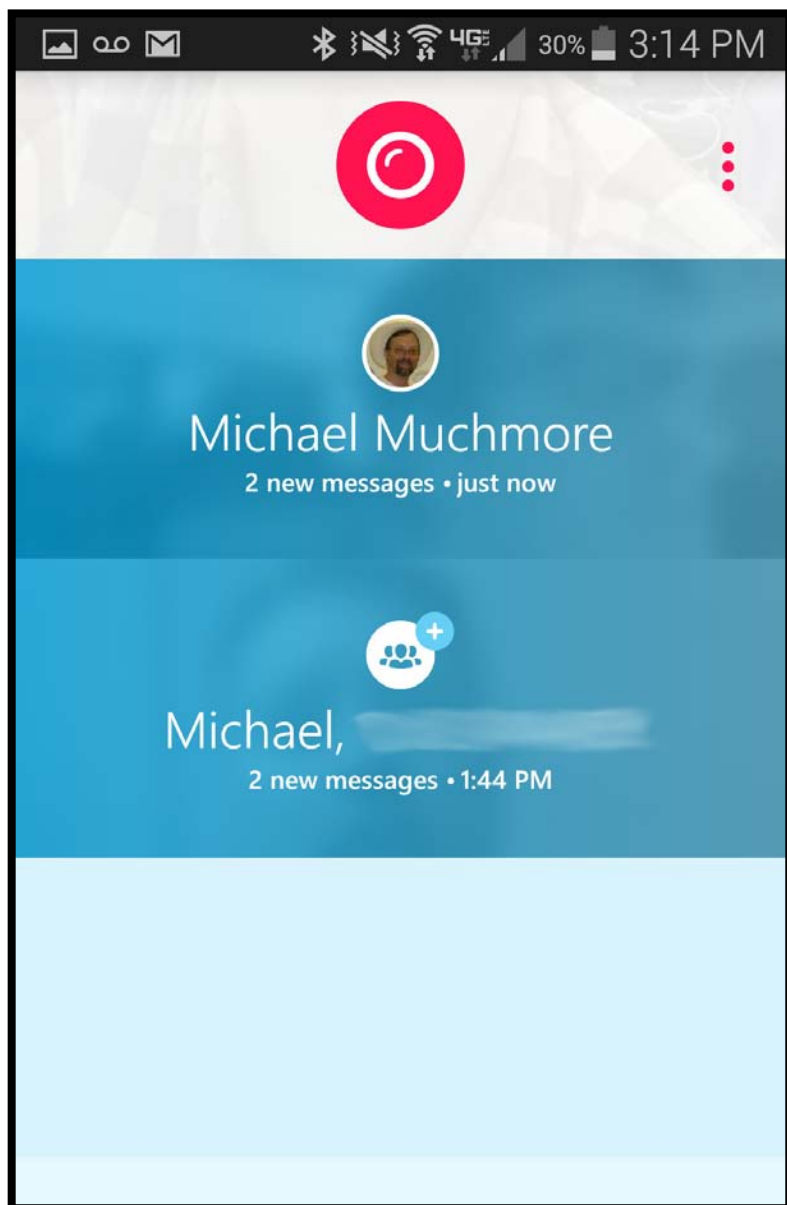


Lumosity's brain-exercising games for people of all ages are helpful anywhere, but are best played on the roomy touch screen of a tablet. This app gives you about 10 minutes of brain training a day that tests your focus, speed, spatial skills, and more, all through games that are polished, easy to learn, and fairly challenging. To get the full selection of available games, you'll need a subscription (starting at \$11.99 per month), but what's in the free version is still enough to give your mind a pleasant daily workout.





# Our Favorite Apps



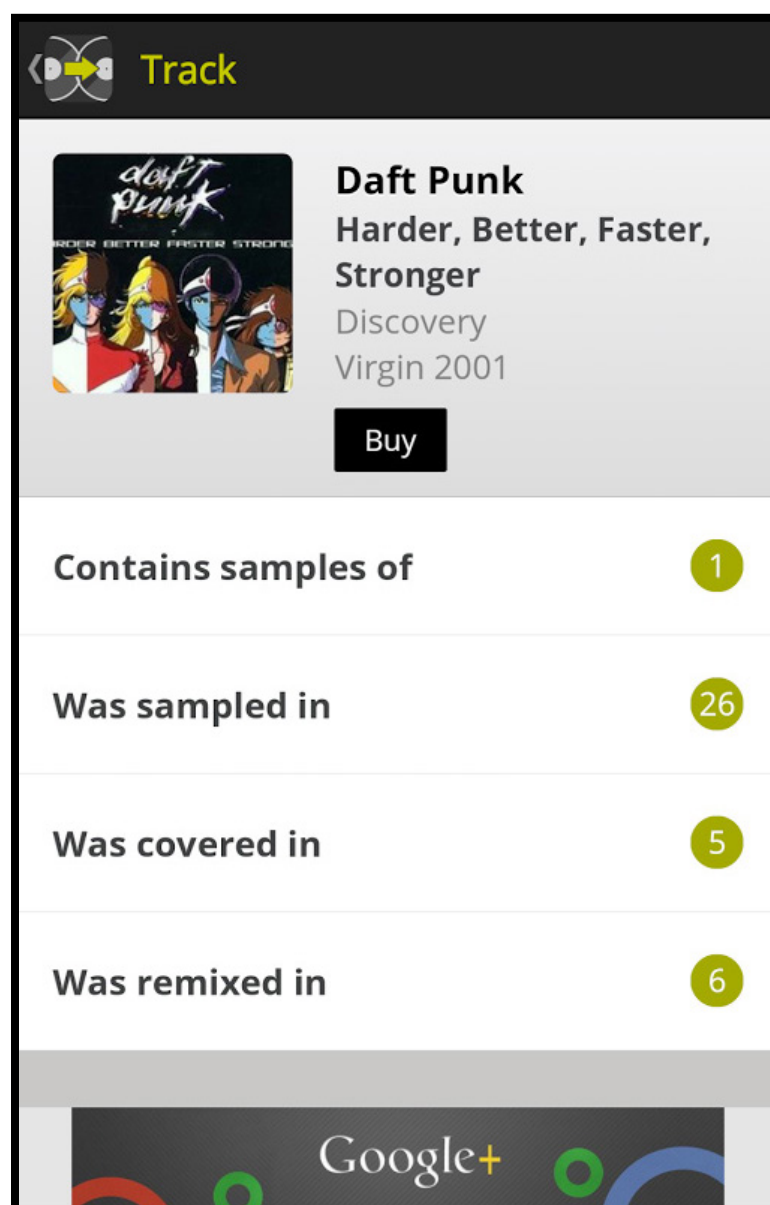
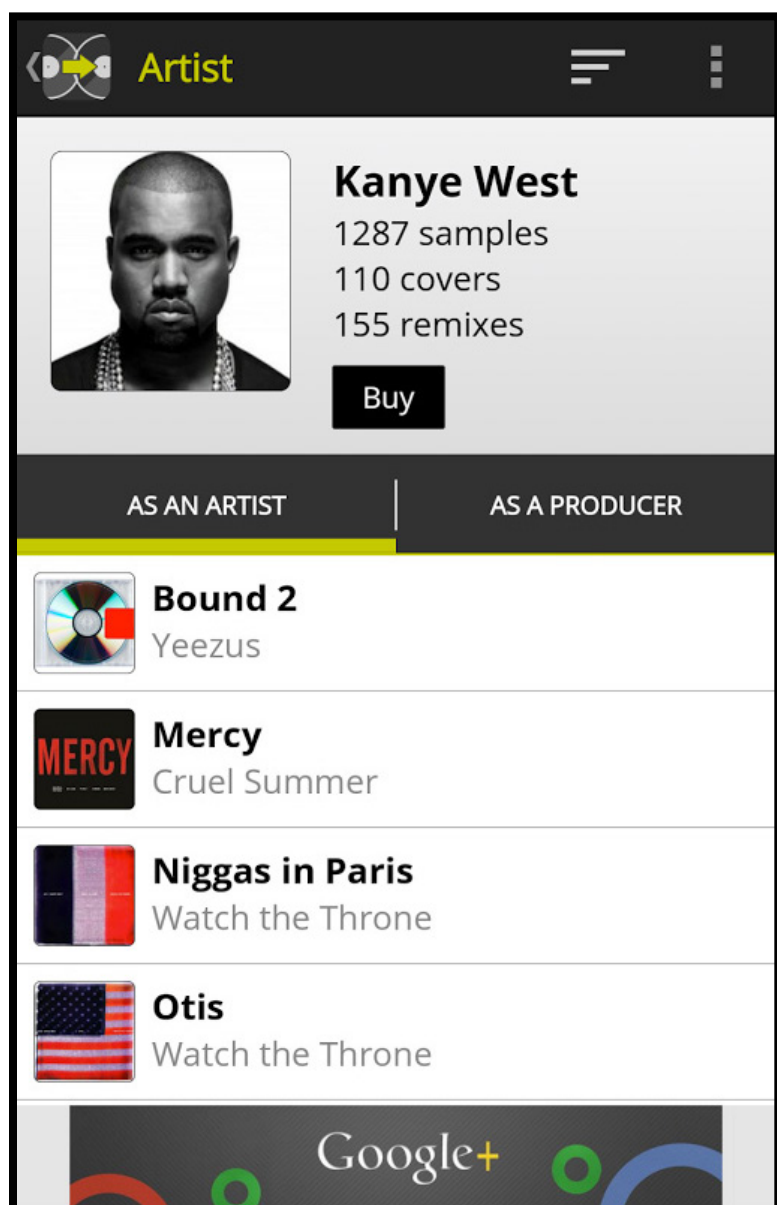
## Skype Qik Android, iOS FREE



Just in case you don't yet have enough messaging apps, Skype Qik lets you communicate with short (40-second), Vine-like selfie videos that delete themselves within two weeks. A beautiful interface and some fun features (you can prerecord up to a dozen canned videos to deploy whenever you want) counter some notable limitations: You can't send text, you can't review a recording before sending it, and you can't upload existing videos to use in your message. But if short videos quicken your pulse, Skype Qik is worth trying out.



# Our Favorite Apps



## WhoSampled Android, iOS Free - \$2.99

**EDITORS' CHOICE** ● ● ● ● ○

Pandora, Songza, and other music apps boast of their ability to introduce listeners to new tunes by using secret-sauce algorithms or community input, but few of them can match the music-discovery chops of WhoSampled. Based on the popular website of the same name, WhoSampled helps you connect the musical present to the past by highlighting the song snippets that were used to build other songs. If you're a die-hard music (and music trivia) fan, you'll definitely want to download this app.





# TOP 100



**DESKTOPS  
LAPTOPS  
PERIPHERALS  
COMPONENTS  
STORAGE**

**SOFTWARE &  
INTERNET  
MOBILE APPS  
SECURITY**

**PRINTERS  
SCANNERS  
PROJECTORS  
NETWORKING**

**TABLETS  
EBOOK READERS  
MOBILE DEVICES**

**CAMERAS  
HDTV &  
HOME THEATER  
AUDIO**

**GAMING  
DIGITAL HEALTH  
& FITNESS  
WEARABLES  
DIGITAL HOME**

# BEST OF 2014

Although smaller systems and convertible laptop PCs skyrocketed in popularity in 2014, powerful new technologies and major advances from Apple and other companies ensured that innovative design and unique features were seen in every product category.

BY PC MAGAZINE STAFF

# LAPTOPS

# PC PERIPHERALS & COMPONENTS STORAGE

# DESKTOPS



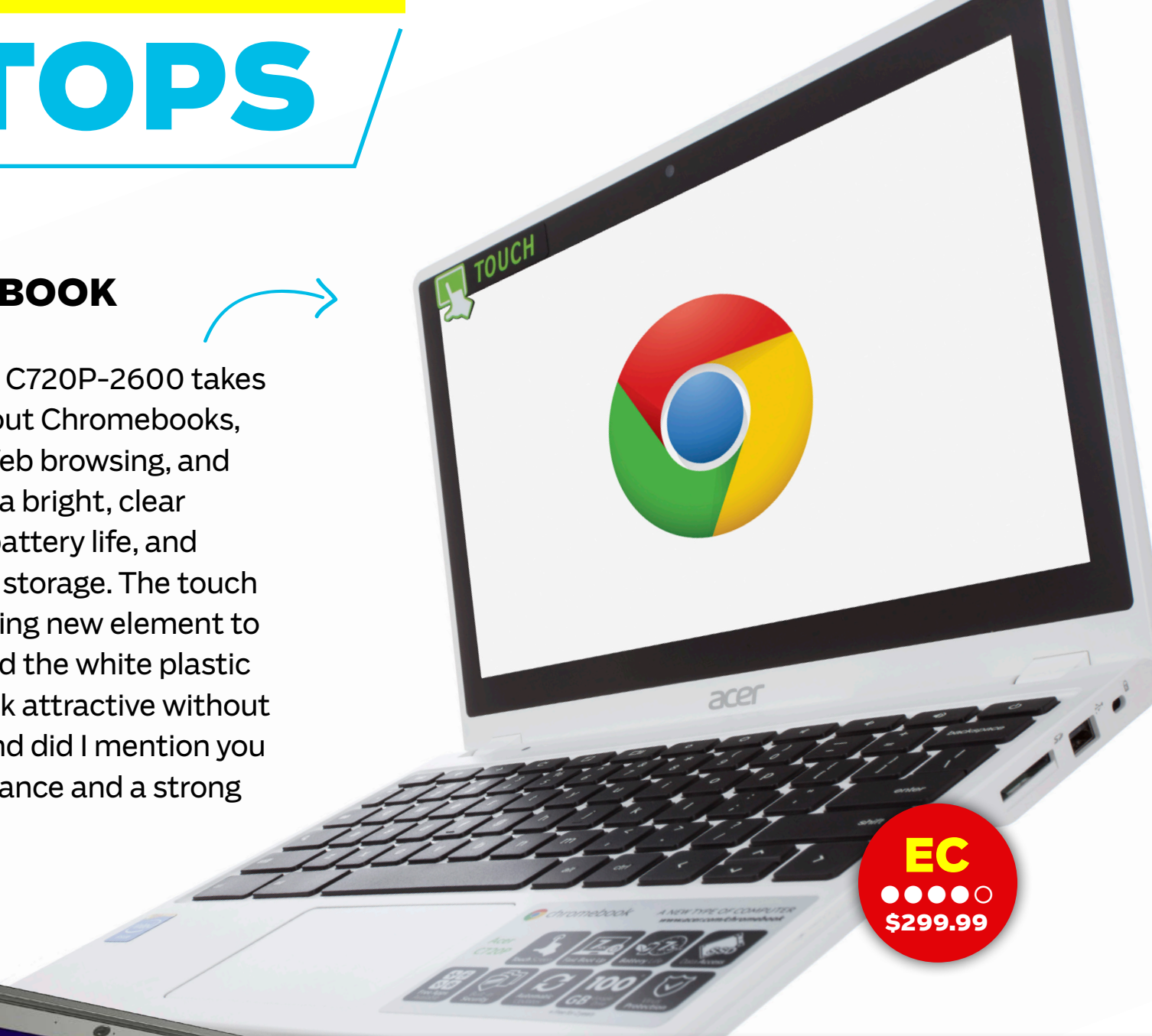


# LAPTOPS

## BUDGET / ACER CHROMEBOOK 720P-2600

The Acer Chromebook C720P-2600 takes everything we love about Chromebooks, like a low price, easy Web browsing, and lots of apps, and adds a bright, clear touch screen, all-day battery life, and double the solid-state storage. The touch screen adds a compelling new element to the Chrome laptop, and the white plastic design manages to look attractive without driving up the price. And did I mention you also get zippy performance and a strong feature set?

—BRIAN WESTOVER



EC  
●●●●●○  
\$299.99



EC  
●●●●●○  
\$1,495

## BUSINESS / LENOVO THINKPAD X240

The Lenovo ThinkPad X240 is a slim and light business ultrabook that not only offers solid performance, but also boasts a durable Mil-Spec design and an outstanding 15-plus hours of battery life. Throw in an Intel Core i5 Haswell CPU, a speedy solid-state drive, and a 12.5-inch In-Plane Switching touch-screen display, and this highly portable business laptop is worth its top-dollar price. —BW

## DESKTOP REPLACEMENT / APPLE MACBOOK PRO 15- INCH RETINA DISPLAY (2014)

The latest version of Apple's 15-inch MacBook Pro gets a stunning Retina display with 2,800-by-1,800 resolution. For video and graphics pros, the new display will be indispensable, but even without Retina, it's still one of the best laptops around. It packs two Thunderbolt 2 ports, HDMI output, Intel Iris Pro graphics, and 16GB of RAM, and it delivers almost 9 hours of battery life. —BW



EC  
●●●●●○  
\$1,999



# LAPTOPS

## GAMING / ORIGIN EON17-SLX

The newest iteration of the Origin EON17-SLX revs things up with an Intel Core i7-4930MX Extreme Edition CPU, dual Nvidia GeForce GTX 780M graphics, and spacious, speedy storage. It's not the most portable system in the world, but the hardware selection and resulting performance push it to the front of the pack. —BW



EC  
●●●●●○  
\$3,676.34

EC  
●●●●●○  
\$1,299.99



## ULTRAPORTABLE / APPLE MACBOOK PRO (13-INCH)

The 13-inch Retina display—equipped Apple MacBook Pro is undeniably our pick for high-end ultraportables. It has that brilliant 2,560-by-1,600-resolution screen, but that's just the start, with first-rate performance thanks to a nimble Intel processor with Iris Graphics, excellent connectivity with a pair of 20Gbps Thunderbolt 2 ports, and more than 13 hours of battery life. —BW

## ULTRABOOK / TOSHIBA KIRABOOK 13 I7S TOUCH

The Toshiba Kirabook 13 i7s Touch is a top-notch high-end ultrabook that smokes its rivals and looks good doing it. With a 2,560-by-1,440-resolution WQHD screen and premium components, all housed in a magnesium alloy chassis, this is one of the best ultraportables we've seen—and it weighs less than 3 pounds. A two-year warranty and Adobe Photoshop Elements and Premiere Elements are included. —BW



EC  
●●●●●○  
\$1,699.99



# DESKTOPS

## BUDGET /

### GATEWAY DX4885-UR2D

The Gateway DX4885-UR2D is an entry-level tower desktop PC that goes above and beyond what we expect from a basic model. It comes with 10GB of memory and a beefy Core i5 processor, which means you can keep many tabs open in your browser and multitask to your heart's content. Because a memory upgrade is the first thing we recommend to users complaining about a slow PC, this puts you ahead of the curve.

—JOEL SANTO DOMINGO



## MAINSTREAM CONSUMER /

### ASUS M70AD-US003S

The Asus M70AD-US003S is a midrange tower desktop PC that has future-proofed components to rival those of any high-end multimedia PC. It comes with a speedy Core i7 processor, NFC reader, Nvidia graphics, Qi wireless charging, and even a built-in uninterruptible power supply (UPS) to help you keep working if the power fluctuates. It's our pick for the demanding user. —JSD

## ALL-IN-ONE / APPLE IMAC WITH RETINA 5K DISPLAY

The Apple iMac with Retina 5K Display is ready to wow anyone who works with large-format photos or 4K Ultra HD videos. The screen is at least as good as the Retina display on Apple's iPhone, iPad, and MacBook Pro laptop—and maybe better. The all-in-one iMac also comes with the speedy Apple Fusion Drive, a quad-core processor, and AMD Radeon discrete graphics to keep your photo and video projects moving along. —JSD



# DESKTOPS

## GAMING / FALCON NORTHWEST MACH V (GTX 980)

Falcon Northwest's newest Mach V combines an overclocked Intel Core i7 Extreme Edition processor with three Nvidia GeForce GTX 980 graphics cards, resulting in a PC that raises the bar for all other high-end gaming rigs. This is the system you'll want to hook up to a 4K monitor or Ultra HD TV with a picture so sharp your eyes will bleed. —JSD



## BUSINESS WORKSTATION / APPLE MAC PRO

Although its cylindrical design isn't for everyone, the Apple Mac Pro is as far from a boring box as you can conceivably get. An Intel Xeon processor and dual AMD FirePro graphics will keep high-end Mac enthusiasts and business owners happy for the foreseeable future, particularly if they've already bought Thunderbolt-equipped devices. —JSD



## COMPACT/SLIM / MAINGEAR SPARK

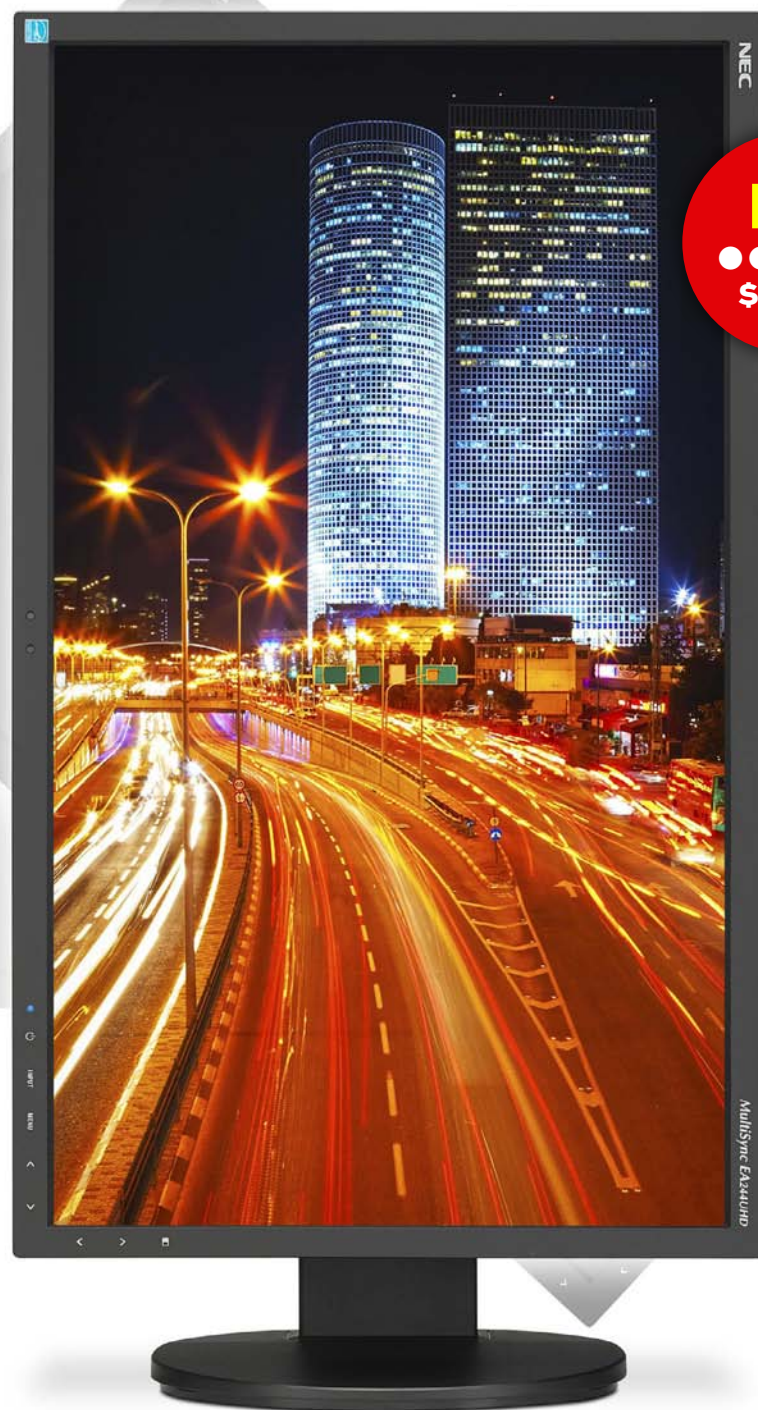
The Maingear Spark proves that you don't have to settle for wimpy and low-powered when buying a mini PC. The Spark is barely 5 inches square and 3.5 inches tall, yet it has the power to play games on 720p or 1080p HDTVs, or perform the usual media hub duties. The sub-\$700 list price is a plus, as are the built-in solid-state drive and wide array of ports on the diminutive chassis. —JSD



# PERIPHERALS

## MONITOR / NEC MULTISYNC EA244UHD

The MultiSync EA244UHD marks NEC's entry into the 4K desktop monitor arena, with a dazzling 24-inch Advanced High Performance In-Plane Switching (AH-IPS) panel with a maximum resolution of 3,840 by 2,160. The monitor delivers outstanding color and grayscale performance, crisp Ultra HD imagery, and numerous connectivity options, making it well worth its high price. —BW



**EC**  
●●●●●○  
\$1,349



**EC**  
●●●●●○  
\$79.99

## MOUSE / LOGITECH G602 WIRELESS GAMING MOUSE

The Logitech G602 Wireless Gaming Mouse offers the precision and reliability that gamers expect, and ups the ante with long battery life and an array of programmable thumb buttons that give you custom in-game controls. It's a fine gaming mouse at a decent price. —BW



## KEYBOARD / DAS KEYBOARD 4 PROFESSIONAL

The Das Keyboard 4 Professional mechanical keyboard is the finest manufacturer Metadot has made to date, offering a superb typing experience. Its sturdy construction and useful features, including dedicated hardware media and sleep controls, and an integrated USB 3.0 hub, make this expensive keyboard worth the investment. —BW

**EC**  
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\$169





# COMPONENTS



## PROCESSOR / INTEL CORE I7-4790K

Intel's Core i7-4790K is a high-end Haswell-based processor for enthusiasts. It improves on the Intel Core i7-4770K in pretty much every way, with a faster clock speed and substantially improved thermals, and it adds back in some of the professional features that were removed from the Core i7-4770K. If you upgraded in 2010 or before, the Core i7-4790K is a worthwhile investment. —BW

## VIDEO CARD / AMD RADEON R9 295X2

The AMD Radeon R9 295X2 is an incredible high-end, dual-GPU video card that will really come into its own once 4K gaming becomes more commonplace. Besides outstanding performance, enormous improvements to operating temperatures (a liquid cooling system is even included) and noise levels help put the R9 295X2 a step above competing cards. This is the strongest product AMD has ever sold in this category, and the fastest single-card gaming graphics solution you can buy.

— LAARNI ALMENDRALA RAGAZA





# STORAGE

## HARD DRIVE / LACIE LITTLE BIG DISK THUNDERBOLT 2

The LaCie Little Big Disk Thunderbolt 2 is the fastest external desktop drive we've tested. Sure, it costs more than a dollar per gigabyte, but it's one of very few drives that can be used to edit and transcode 4K video in real time. If you need the fastest drive for transferring data from one workstation to another, or access multi-gigabyte photo, music, or video libraries at a moment's notice, this is the drive you want. —JSD



EC

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\$1,299



EC

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\$269.99

## PORTABLE DRIVE / SEAGATE BACKUP PLUS FAST

A speedy USB 3.0 portable drive with a 4TB capacity, the Seagate Backup Plus Fast is spacious enough to store hundreds of movies or thousands of photos and music files. It costs an inexpensive 6 cents per gigabyte, and is our first choice for taking a lot of data with you on your daily commute. It's also a good option for that daily backup you've been meaning to set up on your laptop. —JSD

## SOLID-STATE DRIVE / LACIE RUGGED THUNDERBOLT (500GB)

This 500GB LaCie Rugged Thunderbolt is made to take more than a few lumps from drops and being tossed into your commute bag, thanks to its solid-state storage with no moving parts and permanently attached Thunderbolt cable. It's also USB 3.0-compatible, in case you're using it for transferring files to PCs that lack Thunderbolt ports. —JSD



EC

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\$499.99

## USB FLASH DRIVE / KINGSTON DATATRAVELER MICRODUO

The Kingston DataTraveler microDuo is a tiny USB thumb drive that easily slips into your pocket. You'll notice something extra on the drive: a micro USB plug for use with many Android phones and some Windows tablets. It also has a standard full-size USB plug for use with Mac and Windows laptops and desktops. It's this versatility that distinguishes this drive; it's a terrific way to transfer files between your devices. —JSD



EC

●●●●●○  
\$29.95

# BEST OF 2014

What else is there to say about operating systems, Web browsers, and security suites? More than you think. Software, for traditional desktop operating systems, mobile OSes, and the Web, made big advances in capabilities, usability, and speed throughout 2014.

BY PC MAGAZINE STAFF

# SOFTWARE MOBILE APPS & SECURITY

# INTERNET





# SOFTWARE & INTERNET

## OPERATING SYSTEM / APPLE OS X YOSEMITE

Apple's desktop and laptop operating system receives an upgrade with OS X Yosemite that is both the most thorough and the most technically spectacular ever. Everything now has a more consistent, cleaned-up look, with new features like annotations and markup in Mail and Preview slotted smoothly into the apps you already know. And Continuity now lets you use your iPhone or iPad as an extension of your Mac. With these forward-thinking revamps, OS X has widened its lead over the competition as the best desktop operating system out there. —JILL DUFFY



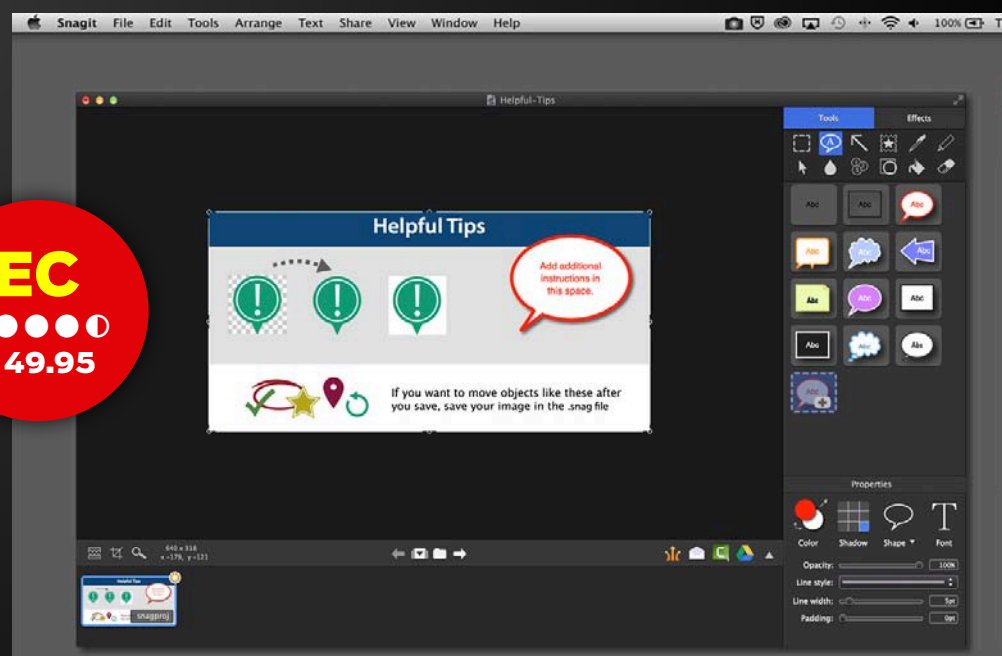
## WEB BROWSER / FIREFOX

With its beautiful new redesign, and improved memory use and speed, Mozilla's open-source browser has once again stepped to the fore. Firefox continues to push the Web's potential, making in-browser 3D gaming performance a possibility with asm.js/Emscripten technology. It recently surpassed the performance of Chrome on Google's own Octane benchmark. And it's still the browser with the most customizability and the strongest privacy protections. —MICHAEL MUCHMORE

## UTILITY / SNAGIT 12

Journalists, bloggers, meme creators, forum posters, and anyone else who works or plays online will eventually need a screen-capture app, and TechSmith's Snagit 12 should be their tool of choice. The app combines a new video trimming tool, traditional image and video capture, image import and export capabilities, and much more in one slick package. Snagit 12 is easy to use, flexible, and powerful, though admittedly a bit pricey.

—JEFFREY L. WILSON





# SOFTWARE & INTERNET

## PHOTOGRAPHY & DESIGN / ADOBE PHOTOSHOP CC

The software that started the image manipulation revolution keeps increasing its superpowers, adding tools you just won't find anywhere else. These include content-aware blend, move, and patch; camera shake reduction; and linked smart raster objects. Your \$9.99-per-month subscription also gets you incredibly powerful 3D editing, including support for 3D printing, and a bevy of ancillary iPad apps. —MM



## CLOUD STORAGE & SYNC / GOOGLE DRIVE

What started as a free online alternative to Microsoft Office has become one of the most impressive services for creating, editing, saving, syncing, and collaborating on documents. A recent update makes this excellent productivity tool better looking, too. Learn its tricks and you'll see that this is one of the sweetest office packages there is. —JD



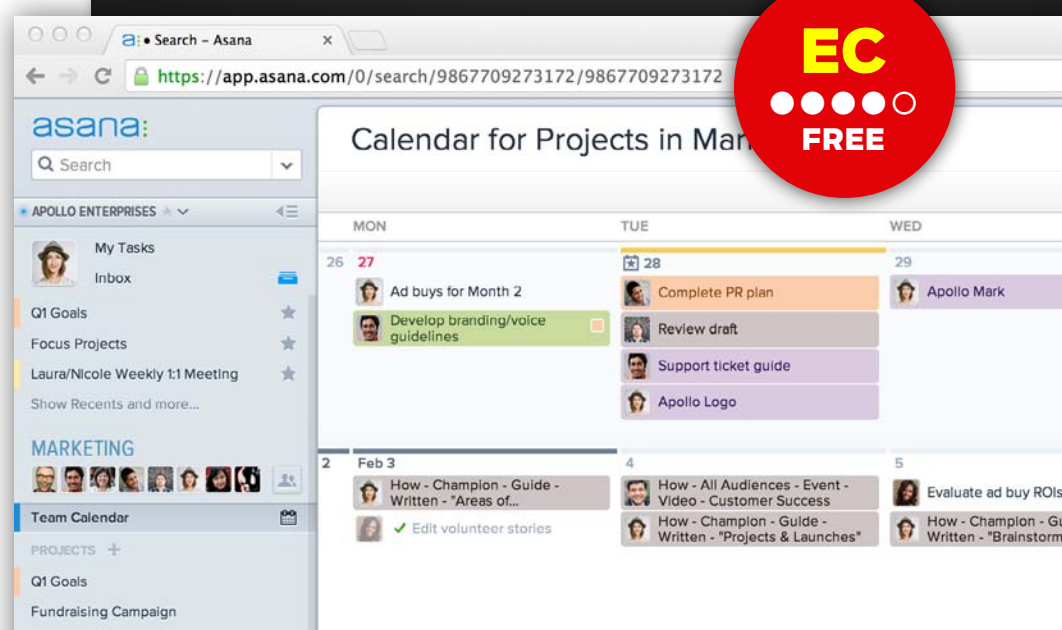
## VIDEO / APPLE IMOVIE 10.0 (FOR MAC)

Sure, it has an appealing, unique, and usable interface, but what sets iMovie apart are its delightful Trailer and Themes features, which take you through the process of creating a truly compelling watch. Of course you get special-effects tools such as first-rate green-screen chroma keying and transitions, but you also get a pro-level collection of sound effects and GarageBand integration. When you're done, you can easily share your cinematic masterpiece to iMovie Theater on iCloud and to the bigger screen with Apple TV. —MM



## WEB APP / ASANA

Collaborative workplace management tool Asana has been gaining popularity over the last few years. Businesses large and small are using it to manage projects, get employees off email, and inspire a new way of working. It's also an excellent example of HTML5 at its best, with fluid drag-and-drop capabilities. We're big fans, too, having adopted Asana to manage some of our workflow after being thoroughly wowed by this nimble app. —JD





# MOBILE APPS

## iPAD APP / MICROSOFT WORD FOR IPAD

Word on the iPad is just as beautiful-looking and well designed as it is on the PC. It's the only serious choice for any iPad user who also uses Microsoft Office on the desktop. This outstanding app is even better since Microsoft upgraded it to let you create and edit documents without an Office 365 subscription. —EDWARD MENDELSON



## ANDROID APP / COMICS

Comixology offers a near-perfect combination of store and comic book reader in its wonderful Comics app. It transforms your Android smartphone or tablet into a digital long box that houses and syncs your purchases across multiple devices, and has an excellent panel-to-panel Guided View mode, digital comics that release on the same day as the print editions, and high-definition comic book files that render stunningly on HD displays. Comics is the best digital comic book experience you'll find for Android. —JLW



## IPHONE APP / INSTAGRAM

Thought Instagram was just for casuals? The iPhone app has features that make it a legit photo editor instead of just a tool for fun photo embellishment. You can adjust not only basics like brightness and contrast, but also shadows and highlights, sharpening, color temperature, and saturation. Instagram won't replace Lightroom for serious photographers, but the tools bring it into the ranks of true photo editing software. —JLW

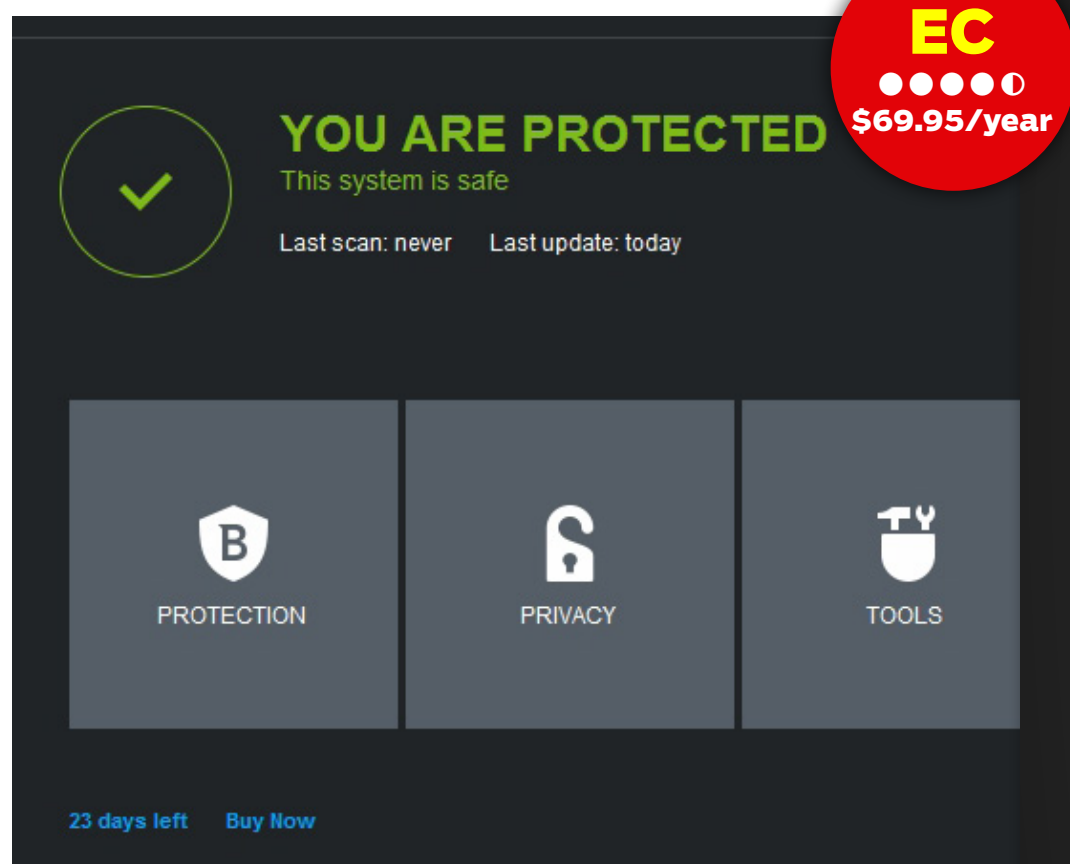


# SECURITY

## SECURITY SUITE / BITDEFENDER TOTAL SECURITY 2015

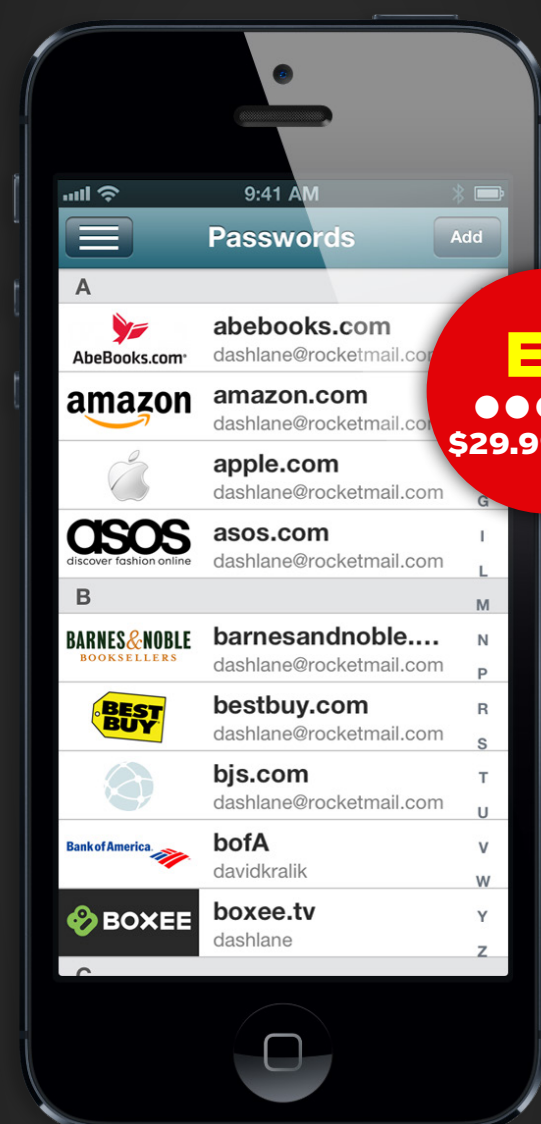
Bitdefender Total Security 2015 starts with award-winning antivirus software and adds just about every security feature you can imagine. It offers antispam and firewall protection, superb phishing detection, online backup and sync, antitheft controls, system tune-up utilities, file encryption, and more. This product is a prime example of a do-all security mega-suite.

—NEIL J. RUBENKING



## PASSWORDS / DASHLANE 3

With revamped secure sharing and a new emergency contacts feature that passes on your data if something happens to you, Dashlane 3 is better than ever. It syncs passwords and personal information across all your PC, Mac, Android, and iOS devices. Its Security Dashboard identifies weak or duplicate passwords and helps you fix them. This password manager does the job with style. —NJR



## STANDALONE ANTIVIRUS / KASPERSKY ANTI-VIRUS 2015

Kaspersky's antivirus technology consistently takes the very highest ratings in independent antivirus tests conducted in labs around the world. Its ability to detect fraudulent (phishing) websites and steer users to safety is among the best. Other useful features include a scanner that finds unpatched security vulnerabilities, a configuration checker to tighten browser security, and a privacy tool to wipe away traces of computer use and browsing history.

EC  
5 stars  
\$29.99/year

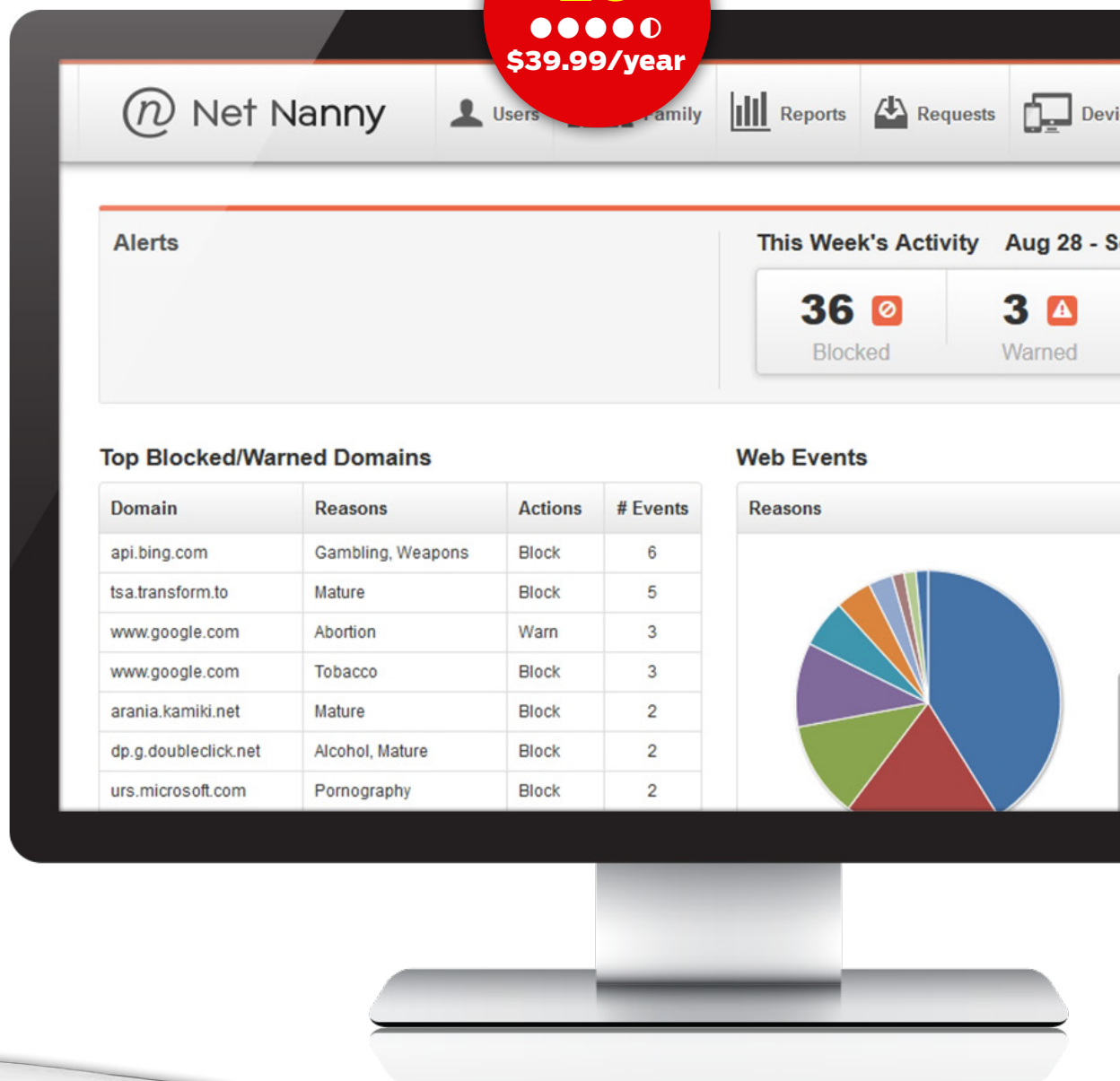




# SECURITY

## PARENTAL CONTROL / CONTENTWATCH NET NANNY 7

With configuration and reporting moved to the Web, Net Nanny 7 is fully at home in the modern multidevice world of parental controls, and it still has the best content filtering around. Cross-device support for Windows, Mac, and Android lets parents track what the kids are doing online, no matter which device they're using. It can even censor profanity in comments on an otherwise clean page. —NJR



## MOBILE SECURITY / BITDEFENDER MOBILE SECURITY AND ANTIVIRUS (ANDROID)

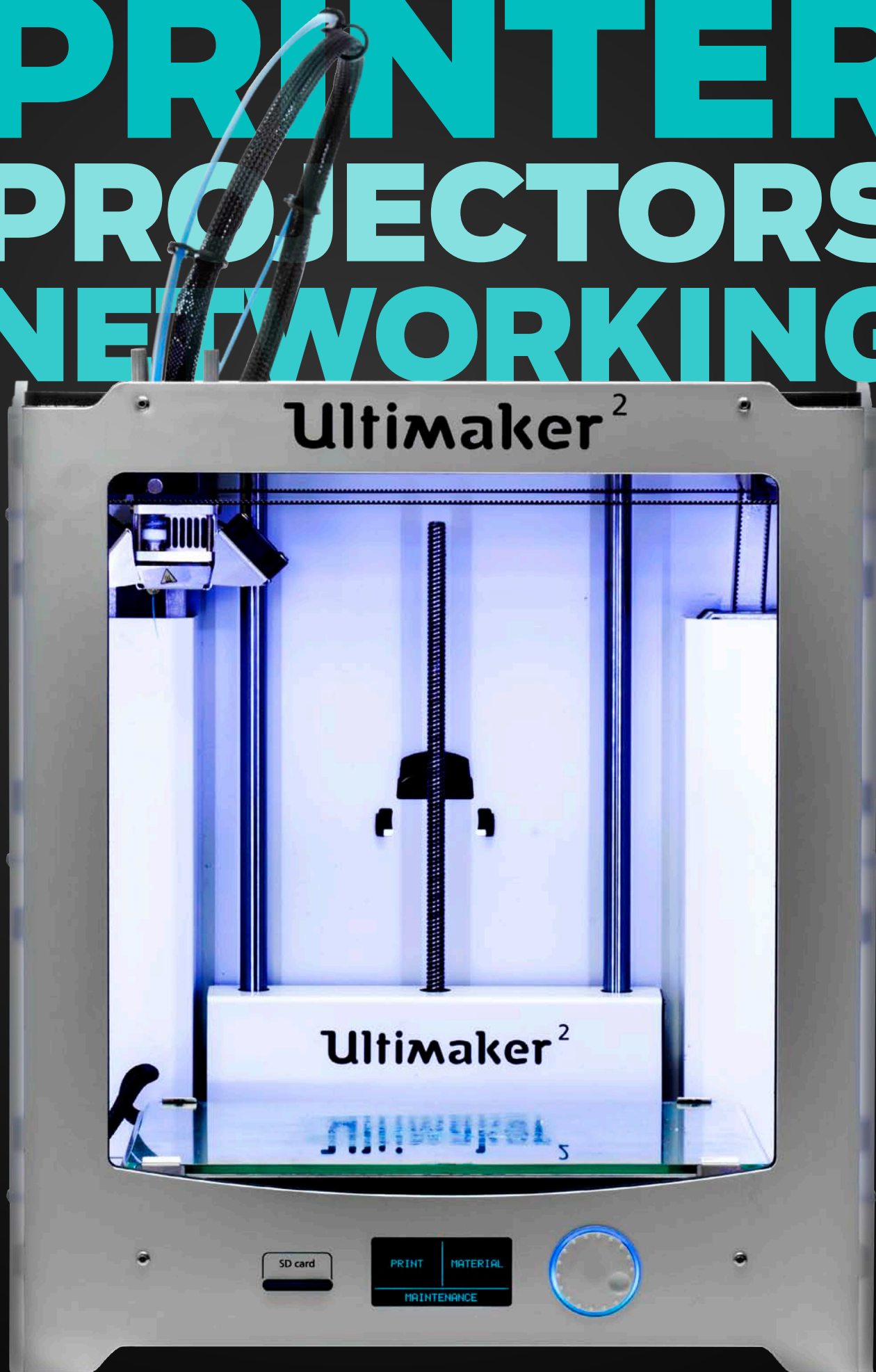
It can be tricky to pick the right security software, but Bitdefender beats out the competition with its balance. The features are excellent and well considered, its malware scan is fast and thorough, and its price is entirely reasonable. Plus, it will help keep your phone safe from sticky-fingered thieves. —MAX EDDY

# BEST OF 2014

You may not think much about your printer, projector, scanner, and networking hardware, but they're workhorses and you'll know right away if there's a problem. This year's models exhibit faster speeds and more features that will keep you working at your most efficient.

BY PC MAGAZINE STAFF

# PRINTERS PROJECTORS NETWORKING SCANNERS





# PRINTERS

## 3D PRINTER / ULTIMAKER 2

The Ultimaker 2 offers high resolution for a 3D printer, its operation in our testing was near-flawless, and getting it up and running was straightforward and quick. This machine has a generous build area of 8.8 by 8.0 by 9 inches (HWD), and print quality that's easily good enough for hobbyists, classrooms, and most product designers. The Ultimaker 2 is simple enough to even be used by patient novices, and it's an excellent choice for a school, library, or community center. —TONY HOFFMAN



## HOME-SOHO MFP / BROTHER MFC-J470DW

The Brother MFC-J470DW offers a good feature set for a budget multifunction printer (MFP), and has low claimed running costs for a printer in its price range. Features include fax capability, an auto-duplexer for two-sided printing, and an automatic document feeder (ADF) for copying, scanning, or faxing multipage documents. It also provides USB and Wi-Fi connectivity, and supports printing from and scanning to iOS, Android, and Windows Phone devices. —TH

## PHOTO PRINTER / CANON PIXMA iP8720 WIRELESS INKJET PHOTO PRINTER

Aimed at the moderately serious photo enthusiast, the Canon Pixma iP8720 Wireless Inkjet Photo Printer offers a low initial price and the ability to print at up to 13 by 19 inches. Although it can also print text and graphics on plain paper, and even print on optical discs, having only one paper tray makes it best suited for printing photos. It offers a six-color ink system (with cyan, magenta, yellow, gray, black, and photo black), which helps it to excel at printing black-and-white photos, too. —TH



# PRINTERS



EC

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\$399

## SMALL OFFICE MONO LASER MFP / CANON IMAGECLASS MF6160dw

The Canon imageClass MF6160dw has an abundance of strengths. It offers more paper capacity than most small offices need. It can print faster in duplex than much of the competition can print in simplex. The output quality is better than most mono laser printers can manage. And its 50-sheet ADF can copy, scan, and fax two-sided documents. All this adds up to make the Canon imageClass MF6160dw a particularly good fit for a micro or small office. —TH

## SMALL OFFICE COLOR INKJET MFP / HP OFFICEJET 6830 E-ALL-IN-ONE PRINTER

The HP Officejet Pro 6830 e-All-in-One Printer can serve nicely as a shared multifunction printer in a micro office or as a personal printer in any size office. Its 35-sheet ADF can scan up to legal-size pages. The single paper tray has a 225-sheet capacity. Connectivity choices include USB, Ethernet, Wi-Fi, and HP's equivalent of Wi-Fi Direct. It can print from or scan to a USB thumb drive, and offers a full set of mobile printing features, including printing from iOS, Android, and BlackBerry phones and tablets. It has solid output quality across the board. —TH



EC

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\$179.99

## HEAVY-DUTY SMALL OFFICE COLOR MFP / EPSON WORKFORCE WF-3640

The Epson WorkForce WF-3640 provides excellent text quality for an inkjet, but its biggest strength is its paper handling. Its 500-sheet paper capacity is divided between two drawers, making it easy to keep two kinds of paper loaded and switch between them. Its ADF offers duplex scanning, copying, and faxing on top of this MFP's print duplexing. It can connect via USB, Ethernet, or Wi-Fi, as well as Wi-Fi Direct. —TH



EC

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\$199.99



# PROJECTORS

## MOBILE PROJECTOR / INFOCUS LIGHTPRO IN1146

Rated at 1,000 lumens, the InFocus LightPro IN1146 is among the brightest of LED-based WXGA projectors out there, and it has tons of connectors for working with a wide variety of image sources. The IN1146 performed better than similar projectors in every key area, including portability, connectivity, image quality for both data and video, and even price. —TH



**EC**  
●●●●●○  
\$649



**EC**  
●●●●●○  
\$999

## HOME ENTERTAINMENT PROJECTOR WITH 3D / EPSON POWERLITE HOME CINEMA 2030

If you're looking for a low-cost 1080p projector for showing both 2D and 3D content, and particularly if you want one that's guaranteed not to show rainbow artifacts, the Epson PowerLite Home Cinema 2030 should be on your short list. It also handled 3D content well, and did a wonderful job on image quality for 2D video, with good handling of skin tones excellent color quality, and an appropriately crisp image for HD resolution. —TH

## INTERACTIVE DATA PROJECTOR / EPSON BRIGHTLINK 595Wi INTERACTIVE WXGA 3LCD PROJECTOR

The Epson BrightLink 595Wi has sterling credentials as an ultra-short-throw interactive projector, including automatic calibration and the ability to use the interactive feature with any image source. It can also turn whatever you use for a screen into a touch screen and project a 92-inch (diagonal) image with the front of the projector just 10 inches from the screen. It has strong data image quality, and as an LCD projector, its video is free of potentially annoying rainbow artifacts. —TH



**EC**  
●●●●●○  
\$2,399

# SCANNERS



**EC**  
●●●●○  
\$ 69.99



## BUDGET HOME PHOTO SCANNER / CANON CANOSCAN LiDE 120 COLOR IMAGE SCANNER

If you're looking to scan photographic prints but not film or slides, Canon's CanoScan LiDE 120 Color Image Scanner delivers, and at a low price. The image quality for photos was excellent in our testing, with the LiDE 120 capturing details based on color quality that many scanners miss. As a strictly flatbed scanner, the LiDE 120 isn't meant for office tasks, but in a pinch it can scan documents into editable pages or searchable PDFs. —TH



## PORTABLE PC-FREE SCANNER / FUJITSU SCANSNAP iX100

The Fujitsu ScanSnap iX100 portable scanner lets you leave your computer at home and scan to a smartphone or tablet instead. You can check the quality of each scan on your mobile device while you still have the original handy to rescan if necessary. It can connect via Wi-Fi Direct—a good option for mobile scanning, as you don't have to go through an access point—or via USB or Wi-Fi. Fast, easy to set up, and easy to use, the iX100 is tough to beat for portable scanning. —TH



**EC**  
●●●●○  
\$229



## A black ASUS RT-AC68U Dual Band 802.11AC Gigabit Router is shown from a three-quarter front view. It has three large, adjustable antennas. The front panel features a textured, diamond-patterned design. A red circular badge is overlaid on the front, containing the text 'EC' in yellow, five white dots (the first four are solid, the last is an outline), and the price '\$199.99' in white. The ASUS logo and model name are visible on the top right of the router.

Asus' RT-AC68U is the choice device for those looking for the faster network throughput that next-gen wireless standard 802.11ac delivers. The RT-AC68U clocked almost 300Mbps of throughput in 802.11ac operating mode—the fastest we've yet seen. It also proved to be a powerhouse in wireless coverage. An easy, no-fuss setup and business-class features make the RT-AC68U an excellent Wi-Fi router for small business and power users. —SAMARA LYNN

**EC**  
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**\$199.99**



**EC**  
●●●●●  
**\$293.91**



**EC**  
●●●●●  
**\$1,000**

**This outstanding NAS server is designed to meet the demands of small-to-medium-sized businesses. Its disk I/O performance is superb, four Gigabit Ethernet ports allow for connection redundancy or bandwidth aggregation, and its hot-swappable RAID recovery and volume rebuild may be the best in the business. —SL**

This easy-to-use, easy-to-install wireless networking software utility provides insight into your wireless environment so you can optimize Wi-Fi performance. Use inSSIDer to reveal information about all of the Wi-Fi networks in your area including channels, encryption levels, signal strength, and more. An abundance of tutorials and tips shows everyday users how to best use this data to boost wireless performance. —SL

**EC**  
●●●●●  
**\$19.90**

SSID	Signal	Channel	Security	MAC Address	802.11	Vendor
TP-LINK_11@Home	-36 dBm	2	WPA2-Personal	F4EC38F81376	g	TP-LINK TECHNOLOGIES CO., LTD.
	-69 dBm	11	WPA2-Personal	0024D281B5EE	g	Askey Computer
	-71 dBm	6	WPA2-Personal	E01D3B3D5BEC	n	
	-75 dBm	7	WPA2-Personal	E01D3B2903CC	n	
	-81 dBm	11+7	WPA-Personal	ACE215D1041E0	n	
	-83 dBm	1	WPA2-Personal	D0542DFF1F884	n	Cambridge Industries(Group) Co.,Ltd.
	-87 dBm	3	WPA2-Personal	000559241C2A	b	Intracom S.A.
	-88 dBm	3	Open	00156D200452	b	Ubiquiti Networks Inc.
	-90 dBm	2	WPA2-Personal	E01D3B3E19B4	n	
	-93 dBm	11	WPA2-Personal	E01D3B3E21DC	a	



# BEST OF 2014

Smartphones, tablets, and other mobile devices only gained in popularity and stature in 2014, as the selection of styles, sizes, and features broadened. Who can blame people for always wanting to stay in touch? Here are the best of these products we saw this year.

BY PC MAGAZINE STAFF

# TABLETS MOBILE DEVICES

# BOOK READERS

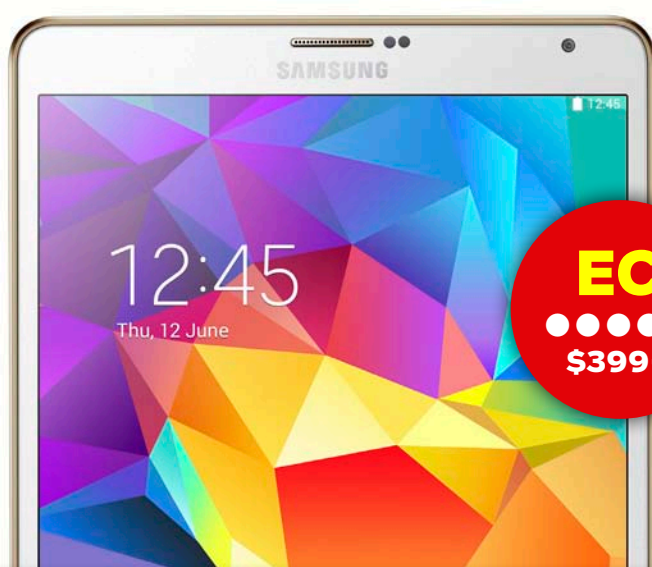




# TABLETS & EBOOK READERS

## SMALL-SCREEN TABLET / SAMSUNG GALAXY TAB S 8.4

The first thing you see with the Tab S is the glorious, glowing, super-high-resolution Super AMOLED screen. After that, everything else (possibly including reality) looks a little bloodless. The Tab S is feather-light, slim, speedy, expandable, and a dazzlingly colorful window onto the Internet; it's the best tablet under 9 inches. —SASCHA SEGAN



## LARGE-SCREEN TABLET / APPLE IPAD AIR 2

Each year, Apple shaves away a little bit of the iPad; eventually, we'll have apps floating in midair. The iPad Air 2 is thinner and lighter than last year's model, and still offers the fastest processor and best tablet app selection of any mainstream tablet. Though other tablets can come close to matching its hardware, the iPad is still the only tablet platform that every app developer feels it must support. —ss

## IPAD ACCESSORY / LOGITECH ULTRATHIN KEYBOARD COVER FOR IPAD AIR

The Logitech Ultrathin Keyboard Cover for iPad Air is exactly what it sounds like. It's a thin, compact keyboard that connects via Bluetooth and magnetically attaches to your iPad—and it protects the screen, too. Despite the compact size of the cover, it's comfortable to type on thanks to its well-sized and well-spaced keys. And it has useful dedicated keys for iPad-specific functionality, such as a Home button and media controls. It's a slick keyboard at a shrewd price. —ANTONIO VILLAS-BOAS



## EBOOK READER / AMAZON KINDLE VOYAGE

Amazon's latest ebook reader is not only the best one the company has ever made, it's the best ebook reader currently available. It has a beautiful, thin design, with an incredibly sharp display and a useful adaptive front light, not to mention Amazon's excellent ebook store. It's undeniably pricey for an ebook reader, but it's a premium product through and through, making it a worthy splurge. —ALEX COLON





# MOBILE DEVICES & NETWORKS

## SMARTPHONE / APPLE iPhone 6

Apple's iPhone 6 grows the iPhone's screen to 4.7 inches without sacrificing comfort. The phone is made of premium materials, runs the fastest processor in any phone today (the 64-bit A8), and has the best overall camera of any top-selling handset. On Verizon and T-Mobile, it features the carriers' latest call-quality technology. If you've been waiting to upgrade an iPhone or to buy your first smartphone, this is the model to get, and this is the time to get it. —ss



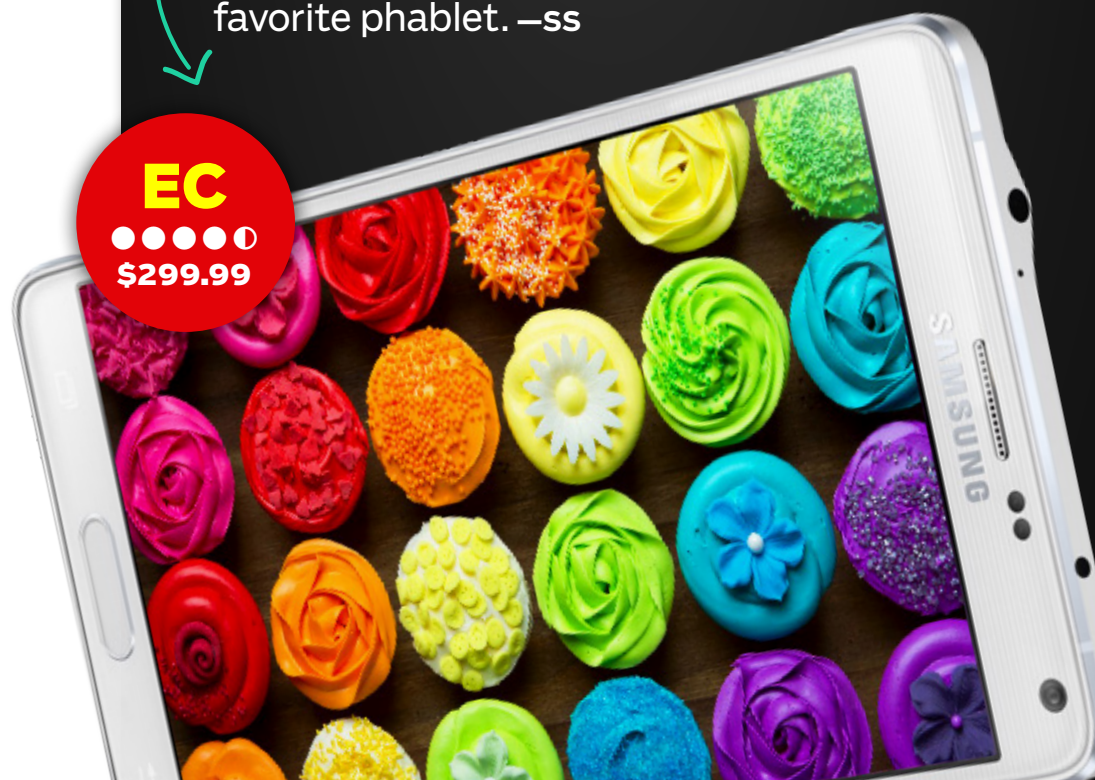
## WIRELESS NETWORK / VERIZON WIRELESS XLTE

Each year, we drive tens of thousands of miles testing all the major wireless networks for our Fastest Mobile Networks project. This was Verizon's year by a landslide. The carrier's new XLTE spectrum let it deliver faster, more reliable LTE to much more of the country than any of its competitors, making it our nationwide choice. —ss



## PHABLET / SAMSUNG GALAXY NOTE 4

The Samsung Galaxy Note line started us down the path toward plus-sized smartphones, so it's only fitting that this year's Note 4 takes top honors for phablets. It's brimming with the latest in mobile tech, including the absolute best display on any mobile device. Samsung also ditched the chintzy faux-chrome plastic in favor of a far more premium metal frame. An unbeatable stylus and multitasking features are just icing on the cake for our new favorite phablet. —ss







### GPS NAVIGATION / GARMIN NÜVI 2689LMT

If you're wondering why some people still want standalone portable navigation devices in an age of smartphones, the oversized Garmin nüvi 2689LMT makes a compelling case. It offers a super-clear user interface, finely detailed maps, excellent routing, and clear, on-point voice prompts. It also comes with lifetime map and traffic updates, and even has a capacitive 6-inch touch screen you can pinch-zoom in and out of. For the price, it doesn't get much better than this. —JAMIE LENDINO



### IPHONE ACCESSORY / MOPHIE SPACE PACK (IPHONE 5/5S)

The mophie space pack added a stellar 8 hours, 18 minutes, of talk time to our iPhone 5s, which is more than any battery case we've tested to date. But the real reason for the space pack's relatively high price is the extra storage it gives your iPhone: perfect for music, videos, and pictures. The space pack comes in 16 and 32GB variations, and uses a well-designed app to access any files you store. Think of it as a battery case with a memory card inside. —AV-B

### BLUETOOTH HEADSET / ERA BY JAWBONE

Far from the fashion-faux-pas Bluetooth headsets you're used to, the latest Era by Jawbone is discreet and tastefully designed. Thankfully, call and audio quality remain pristine, despite the shrunken-down proportions. On top of that, Jawbone sells a handy charging cradle that can juice up the Era on the go for those marathon call sessions. —EUGENE KIM



### CELLULAR MODEM OR HOTSPOT / SAMSUNG LTE MOBILE HOTSPOT PRO (T-MOBILE)

Samsung's new cellular modem for T-Mobile is the best one to buy now, even if some modems on other carriers beat it on features. The LTE HotSpot Pro delivers solid connection quality, fast speeds, and long battery life, and it sports a color touch screen. And though it doesn't support T-Mobile's fastest 20+20 network, it still managed excellent download speeds of 15-20Mbps in Manhattan in our tests, and lasted for almost 11 hours on an LTE battery test, a stellar result. —JL

# BEST OF 2014

Whether you want to preserve all of your important memories, or even just take in your favorite videos and songs, these outstanding media products released this year will make doing so the easiest and the most fun it's ever been.

BY PC MAGAZINE STAFF

## CAMERAS

## HDTVS &

## HOME THEATER

## AUDIO





# CAMERAS & CAMCORDERS

## **SUPERZOOM / SONY CYBER-SHOT DSC-RX10**

Other cameras in this class offer longer zoom ratios, but the RX10's fixed 24-200mm f/2.8 lens is impeccably sharp. That lens is married to a 20-megapixel 1-inch image sensor, so there's plenty of resolution, and the camera does a solid job controlling depth of field under the right conditions. It's also weather-sealed and solidly built, capable of firing off bursts at 10 frames per second (fps), and includes integrated Wi-Fi. —JIM FISHER



## **POINT-AND-SHOOT / CANON POWERSHOT N100**

The Canon PowerShot N100 isn't the least expensive compact camera out there, but for a little extra money you get a wide aperture zoom lens and an image sensor that's larger than you'll find in most compacts and mobile phones. That means that you'll be able to capture high-quality images in more challenging conditions than your phone can manage, and with automatic operation you won't have to be an expert photographer to get good shots. Wi-Fi support and Canon's Creative Shot mode, which adds Instagram-like filters to images, are among the features that will help you more easily capture and share life's moments. —JF

## **COMPACT SUPERZOOM / NIKON COOLPIX S9700**

The Nikon Coolpix S9700 is slim enough to slide into a shirt pocket, but that doesn't stop it from covering a 30x zoom range. Its 25-750mm lens is capable of capturing wide landscapes and zooming in to hone in on small details. The S9700 also includes integrated Wi-Fi, a GPS module to add location data to photos, and in-camera creative filters. —JF





# CAMERAS & CAMCORDERS

## D-SLR / SONY ALPHA 77 II

Sony made a bold choice in moving its D-SLR line away from optical viewfinders, but the autofocus and burst rates it was able to achieve by doing so have paid off. The Alpha 77 II's OLED EVF is crystal clear and the image it projects is larger than you'll find in competing SLRs with optical viewfinders, and nothing in this class can match the camera's 12fps continuous shooting rate. Its autofocus system is able to track quick action with ease, and it can focus just as quickly when recording video as it can when shooting still images. —JF



**EC**  
●●●●●  
\$1,199.99



**EC**  
●●●●●  
\$1,599.99

## FULL-FRAME D-SLR / NIKON D810

Nikon's second try at a 36-megapixel camera might not seem like a huge upgrade from the D800 on paper, but small tweaks and upgrades go a long way to make it a stronger candidate for your dollar. Its image sensor completely omits an optical low-pass filter, so there's nothing to blur away fine detail, and its 51-point autofocus system has been improved. Nikon also redesigned the handgrip, lowered the base ISO, and added a 9-megapixel Small Raw mode for those times when you don't need all of that resolution. —JF



**EC**  
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\$3,299.95

## LENS / PANASONIC LUMIX G LEICA DG NOCTICRON 42.5MM F1.2

The Panasonic Nocticon lives up to its Leica branding thanks to impeccable sharpness and the ability to gather almost 50 percent more light than an f/1.4 lens. Its field of view is that of a classic portrait lens, and the lens can be used on both Panasonic and Olympus cameras. But most striking is the shallow depth of field that's possible when shooting at f/1.2; it's not quite as thin as you'd get with a full-frame camera and an f/1.2 lens, but it's shallow enough to open up new creative possibilities for the smaller Micro Four Thirds format. —JF



# CAMERAS & CAMCORDERS

## MIRRORLESS / SONY ALPHA 6000

Sony's small wonder squeezes an APS-C image sensor, OLED EVF, and pop-up flash into a compact body, all at an attractive price. Other cameras in this class offer similar refinements, but it's the 6000's autofocus system that sets it apart from the crowd. It can track moving subjects and fire off images at an incredible 11.1fps, and it's capable of 1080p60 video capture. It also has Wi-Fi, so you can copy images over to your smartphone, and its functionality can be expanded via downloadable camera apps. —JF



**EC**  
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\$649.99

## RUGGED POINT-AND-SHOOT / OLYMPUS TOUGH TG-3

Olympus has won this category for three years straight—first with the TG-1, then the TG-2, and now the TG-3. The company knows how to make cameras that can survive harsh environments. The TG-3 can go as deep as 50 feet underwater, capture quick bursts of images at 5fps, and has a macro mode that lets you focus right up to the front of its lens. GPS is built in, so location data is added to your photos automatically, and integrated Wi-Fi lets you Instagram photos of your underwater adventures from the comfort of your beach chair. —JF



**EC**  
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\$349.99



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\$1,299.95  
body only

## HIGH-END MIRRORLESS / FUJIFILM X-T1

ThFujifilm's X-T1 shows just how far mirrorless cameras have come over the past few years. Early models were criticized for slow focus, but the X-T1 can track subjects and fire off shots at 8.3fps. Its APS-C sensor is the same size you'll find in most D-SLRs, and weather sealing lets you go out and take pictures when conditions are less than ideal. The X-T1 also sports a sharp EVF, integrated Wi-Fi, and a control system that will satisfy demanding photographers. —JF



# CAMERAS & CAMCORDERS

## CAMCORDER / GOPRO HERO 4 SILVER

The GoPro Hero4 Silver is basically a rebranded Hero3+ Black Edition, save for the sharp 1.5-inch touch screen round the back. And that's a good thing. It records the sharpest and clearest footage out of any action camera we've tested to date. The Hero4 Silver records in 4K up to 15fps, and 2.7K at 30fps, and it gives you myriad options for professional-level shooting and editing right in the device.

—ANTONIO VILLAS-BOAS



## PREMIUM POINT-AND-SHOOT / SONY CYBER-SHOT DSC-RX100 III

Sony's first pocket camera with a 1-inch sensor, the original RX100, broke new ground when it was released in 2012. The RX100 III offers several improvements, including a pop-up OLED electronic viewfinder, integrated Wi-Fi, and a 24-70mm f/1.8-2.8 lens that captures significantly more light when zoomed in. It's expensive, but you won't find these features and this level of image quality in other pocket-friendly compacts. —JF





# HDTV & HOME THEATER

## HIGH-END HDTV / LG 55EC9300

We're still not sold on curved screens, but it's clear that organic light-emitting diode (OLED) technology is the future. LG's pricey 55EC9300 can produce perfectly dark blacks for one of the very few genuine "infinite" contrast ratios we've measured in PC Labs. Add incredibly accurate colors, a striking design, fantastic 3D, and loads of features, and you have plenty of salve to soothe your sticker shock. —WILL GREENWALD



## BUDGET HDTV / TCL 48FS4610R ROKU TV

Connected features and big screens were once bastions of \$1,000-plus HDTV models, but that's changed thanks to Roku and a new wave of inexpensive display manufacturers. The TCL 48FS4610R offers 48 inches of LED-backlit 1080p picture combined with lots of online services and apps through the Roku Channel Store, thanks to Roku's media hub interface built directly into the screen itself. All of that, plus relatively accurate colors, can be had for less than \$500. —WG



## MEDIA HUB / AMAZON FIRE TV

Amazon's first stab at a media hub is a wild success, with numerous useful features and excellent performance for a very friendly price. A microphone-equipped remote lets you search for shows and movies with your voice, and some clever tinkering with the Fire TV's Android heart lets it switch between different apps and services almost instantly, so you can easily jump in and out of whatever you're watching. —WG

## SOUNDBAR / SHARP HT-SB602

Soundbars are the simplest way to improve your HDTV's sound, and the Sharp HT-SB602 is one of the few suited for a really big screen. This soundbar is designed for 60-inch-and-larger HDTVs and features built-in Bluetooth and a two-port HDMI switch. It comes with a wireless subwoofer to give your movies plenty of rumble while keeping the soundbar itself nice and slim. —WG



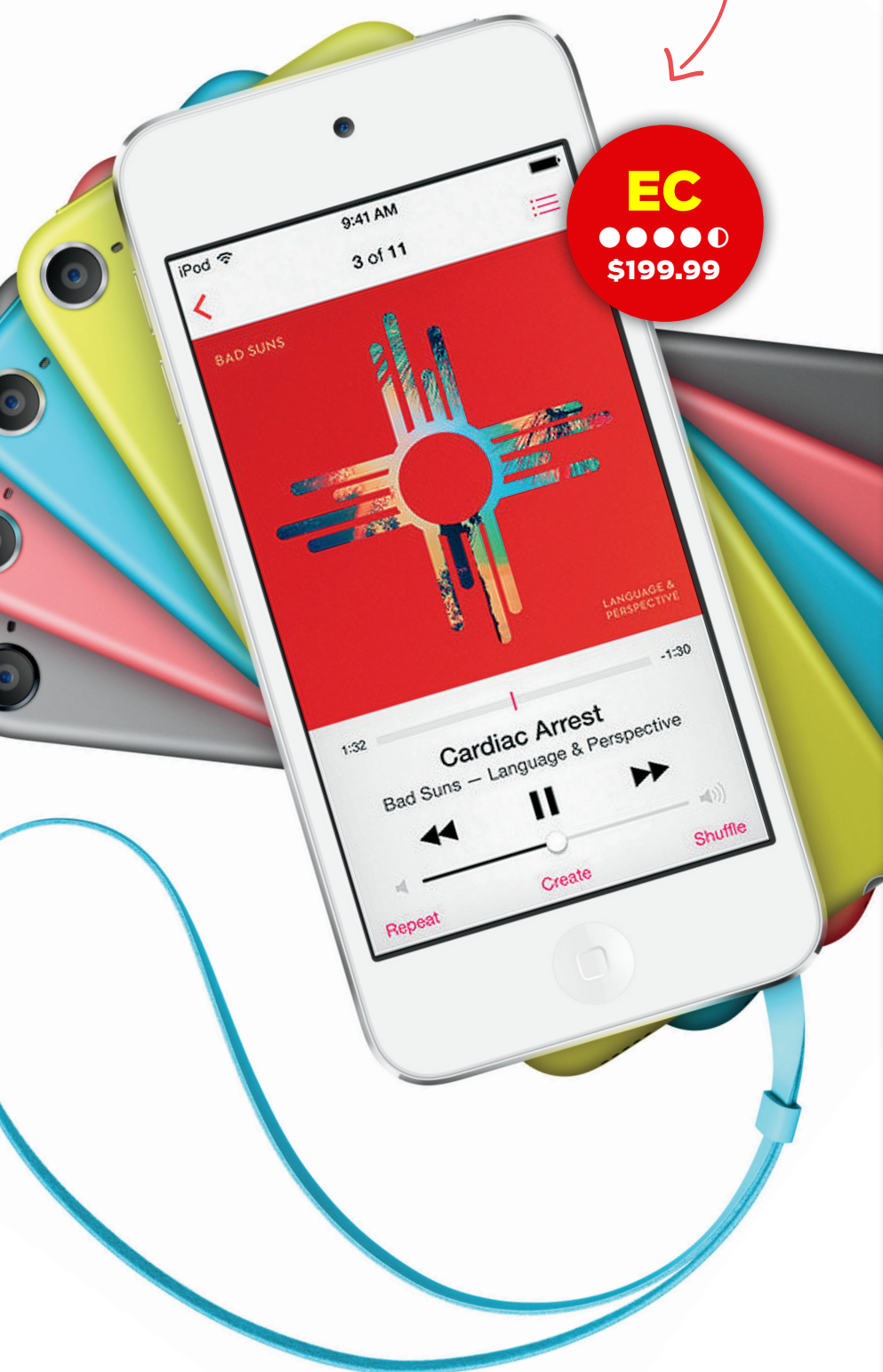


# AUDIO

## MP3 PLAYER / APPLE IPOD TOUCH

What more is there to say that hasn't already been said? Apple's iPod touch remains the untouchable gold standard for portable MP3 players. Move beyond this gadget's music playing prowess and you'll find a gateway into the vast world of high-quality iOS apps. It's an iPhone without the phone. —EUGENE KIM

EC  
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\$199.99



## EARPHONES / BOWERS & WILKINS C5 SERIES 2

Bowers & Wilkins produced the excellent C5 earphones in 2011, and it's followed them up with the C5 Series 2. This headphone pair sports new drivers and slightly tweaked sound, and a nearly identical, but just slightly more attractive design from the original C5. Its audio cable loop-secured earpiece ensures a comfortable and dependable fit. —wg

EC  
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\$179.99



EC  
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\$299.95



## HEADPHONES / BOSE QUIETCOMFORT 25

Bose has developed the best noise cancellation on the market, and it's built that technology directly into the QuietComfort 25 over-ear headphones. Even if purists may scoff, the QC 25's excellent, if sculpted, audio performance, comfortable design, and superlative noise cancelling make it one of the best headphone pairs you can buy. It even works unpowered as passive headphones, a relatively new feature for Bose products. —wg



# AUDIO

## WIRELESS SPEAKER / BRAVEN BRV-X

It's easy to find chunky, rugged speakers, but finding ones that sound good is a trickier proposal. The Braven BRV-X fulfills both criteria with a shockproof design that sports IPX5 water resistance and a surprising amount of power, so you can bring your music wherever you go. It even has a helpful Indoor/Outdoor switch to adjust its sound profile to work better when you're outside. —WG

**EC**  
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\$199.95



**EC**  
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\$399.95



## PC SPEAKERS / POLK AUDIO HAMPDEN

Wood and cream color schemes aren't very common in electronics in 2014, but neither is truly excellent sound. Polk Audio's Hampden desktop speakers offer both. This stereo pair combines an attractive retro design with powerful audio, built-in Bluetooth, and a USB digital-to-audio convertor to make music playback from your PC sound better than usual over the 3.5mm connection. —WG

**EC**  
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\$399.95



## WIRELESS SPEAKER / HARMAN KARDON AURA

This unique one-piece speaker looks more like a fishbowl or a plasma globe than anything designed to produce sound, but that's exactly what Harman Kardon built the Aura to do. The unassuming, mostly transparent design belies powerful, crisp audio and a number of connection options including Bluetooth, AirPlay, and even optical. —WG

# BEST OF 2014

In 2014 the digital home and wearables categories exploded, with lots of amazing and powerful products introduced into the market. These, along with new releases in the worlds of gaming and fitness, offer you lots of ways to improve and enrich your life.

BY PC MAGAZINE STAFF

# GAMING

# DIGITAL HOME

# FITNESS

# WEARABLES



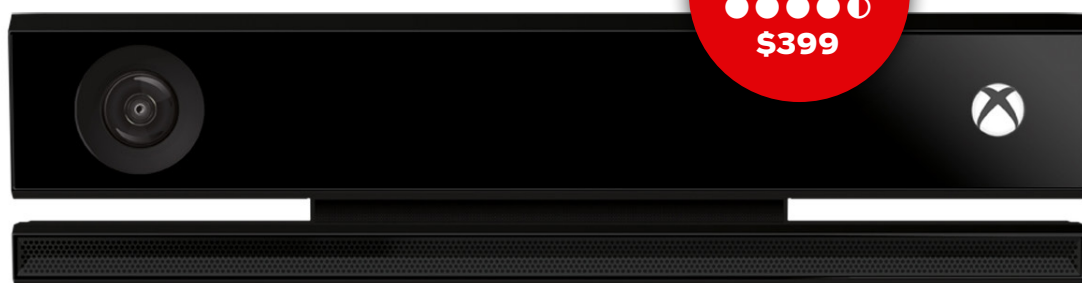


# GAMING

## GAME CONSOLE / MICROSOFT XBOX ONE

The current generation of game consoles is here and well established, and brand loyalists have already picked their sides. Though each of the big three game systems has its own appeal, the Xbox One is by far the most compelling for its feature set. It incorporates an HDMI input and a television program guide, letting you jump between your game and live TV or enjoy picture-in-picture with a button press. If you get the \$500 version with Kinect, it also supports voice controls and even lets you make Skype video calls from your couch.

—WILL GREENWALD



## XBOX ONE GAME / FORZA HORIZON 2

Microsoft's answer to Sony's Gran Turismo blazes an amazing trail between the arcade and simulation genres. Forza Horizon 2 is designed for car nuts who've dreamed of racing roads in a sprawling, open-world environment. If you don't want to compete, you can coast and simply enjoy the view, too. Forza Horizon 2 is a great escape for car aficionados and casual drivers alike.

—JEFFREY L. WILSON



## PC GAME / ALIEN: ISOLATION

Developer Creative Assembly used Ridley Scott's *Alien* as inspiration for this stealth-horror entry, and the result is one of the best games of the year. Rather than focusing on shoot-everything-that-moves action, *Alien: Isolation* is all about evasion and subterfuge. Those who fancy creeping through a foreboding space station with one of cinema's deadliest villains will find a lot to love. —JLW



# GAMING

## PORTABLE GAME SYSTEM / SONY PLAYSTATION VITA SLIM

The Sony PlayStation Vita was an advanced piece of portable gaming hardware, but it was also expensive and chunky, and its game library was paltry compared with that of the Nintendo 3DS. The updated Vita Slim is more affordable, thinner, and lighter, it lasts longer, and it has plenty of good titles. It's better on all fronts, even if its LCD display is a (purely technical) step back from the original's OLED screen. —WG



## NINTENDO WII U GAME / BAYONETTA 2

Platinum Games' second adventure starring the titular angel-killing witch takes everything that was excellent about the original Bayonetta and polishes it further. This is how you do a character action game. Satisfying, fast-paced, complex combat that feels both rewarding and challenging, and it's all on the Wii U. If that's not enough, the game comes with the first Bayonetta in its entirety, with new Nintendo costumes to wear. —WG



## PLAYSTATION 4 GAME / ASSASSIN'S CREED IV: BLACK FLAG

It's easy to dismiss Assassin's Creed IV: Black Flag as just another entry in a string of annual releases, but developer Ubisoft has worked diligently to expand and tweak Assassin's Creed III's features and gameplay into something that stealth-loving next-gen gamers should have in their libraries. Case in point: The new sailing mechanic that lets you plunder on the high seas. —WG



## 3DS/VITA GAME / SUPER SMASH BROS. (NINTENDO 3DS)

The handheld debut of Super Smash Bros. is a fast, fun fighter that calls for four friends to get together and play it for the best experience. Its capable online features let you fight with your favorite Nintendo mascots against players from all over the world, and the single-player options, though not incredibly deep, offer plenty of diversion the next time you have to kill a few minutes of time. —WG





# GAMING

EC

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FREE

## **iPAD GAME / HEARTHSTONE: HEROES OF WARCRAFT**

Blizzard's first foray into mobile gaming is a fast-paced and lighthearted fantasy card game. Now that might put off some readers, but trust me on this one. There's enough deep strategy for veterans of CCGs, and easy fun for everyone else. And best of all: It's free. You have no reason not to install this game on your iPad.

—MAX EDDY



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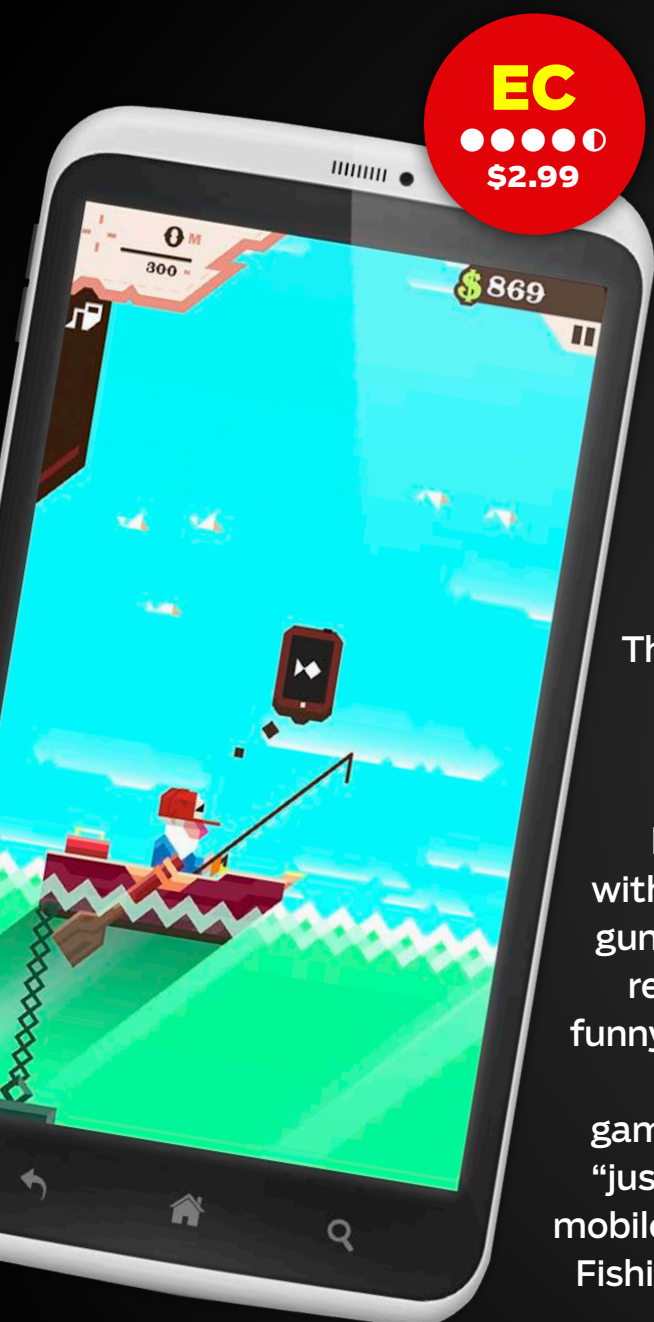
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\$2.99

## **ANDROID GAME / RIDICULOUS FISHING**

There are few games that live up to their title, but Ridiculous Fishing combines the time-honored ritual of fishing with insane heavy weapons gunplay in a charming, low-res package. It's also very funny, which counts for a lot.

Combining challenging gameplay with an addictive "just one more round"-type mobile experience, Ridiculous Fishing is ridiculous fun. —ME



## **iPHONE/iPOD TOUCH GAME / MONUMENT VALLEY**

Whereas most mobile games try to suck you in for more rounds and premium currencies, Monument Valley goes the other direction. It's a quiet, almost meditative puzzler, with a gorgeous design. If you never thought an iPhone screen could convey a sense of awe, think again. Now, if it only had more levels. —ME



EC

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\$3.99



# DIGITAL HEALTH & FITNESS

## ACTIVITY TRACKER / BASIS PEAK

The new Basis Peak is the best activity tracker for fitness you can buy on the market today. It looks like an ordinary, slightly sporty watch, but the magic is in how it automatically detects when you're walking, running, sleeping, and bicycling to measure all those activities when you do them. You never have to put it into sleep mode or running mode. It does that part for you. That makes it not only an excellent tracker, but one you'll thoroughly enjoy wearing. —JILL DUFFY



## APP / MYFITNESSPAL

Knowing what, when, and how much you eat is an extremely important factor in getting to know your overall health, wellness, and habits. MyFitnessPal is the best app for the job. A simple design, excellent interface, enormous database of food, and huge network of supported apps and devices make it unbeatable. —JD

## SMARTWATCH / PEBBLE STEEL

Pebble's Steel is a stylish redesign of the company's original plastic smartwatch that marries high-tech features with high-end looks. Pebble runs on the strength of its simplicity and its growing ecosystem of apps, which is proving to be a winning strategy. With the Pebble Steel and the Pebble app store, the company now has a mature product to go along with a quickly maturing platform. —ALEX COLON



## WEARABLES



# DIGITAL HOME

## HUB / SMARTTHINGS HUB

As more and more affordable home automation products hit the market, consumers will be looking for a hub to unify all their devices seamlessly, and a single app to control them. Along with Z-Wave, ZigBee, and Wi-Fi support, the SmartThings Hub has two things that other hubs don't: the SmartThings Labs, and a developer community dedicated to integrating lots of devices into the SmartThings family. That puts the SmartThings Hub at the front of the home automation pack. —AC



## SECURITY / iCONTROL PIPER

The iControl Piper surveillance cam exceeded our expectations in just about every way—from setup ease and camera quality, to the app itself and the recording of clips to the cloud. It also has an array of sensors that would make a Starfleet science officer proud; it's easy to measure the "vitals" of a room, including brightness, motion, sound, and temperature. Better yet, with an optional Z-Wave sensor pack, it becomes a full-fledged home automation hub. —AC

## ROBOTICS / NEATO VX SIGNATURE PRO

If you've been searching for a powerful robotic vacuum that won't cost you an arm and a leg, check out the Neato XV Signature Pro. It does an outstanding job of picking up all sorts of household debris and is particularly tough on pet hair and dirt. Its laser-guided mapping feature works remarkably well, and its scheduling feature lets you set up cleaning times that fit your lifestyle and schedule. —AC



## CAR / 2015 VOLKSWAGEN GOLF TDI SE

The newly redesigned 2015 VW Golf TDI looks a lot like the existing model. But underneath the finely honed, slightly crisper surface lies a thoroughly updated hatchback, with an all-new 150hp turbo diesel four cylinder, even more refined handling, and some excellent infotainment options. A missing USB port still dogs this car, but aside from that, the Golf TDI is a stellar package for anyone who wants equal parts driving fun and fuel efficiency. And thanks to its generous cargo room and seating for five, it's all the car most people need. —JAMIE LENDINO



# Holiday Guide

**10 HOLIDAY TECH  
GIFTS FOR LESS  
THAN \$100**

**SPLURGE-  
WORTHY GIFTS**

**GREAT GADGET  
IDEAS FOR MEN  
AND WOMEN**

**APPS TO HELP YOU  
SURVIVE HOLIDAY  
TRAVEL**

**TECH ETIQUETTE**

Ask Alex: Tidings of  
Tech Tips for the Holidays



# 10 Holiday Tech Gifts For Less Than \$100

BY PC MAGAZINE STAFF

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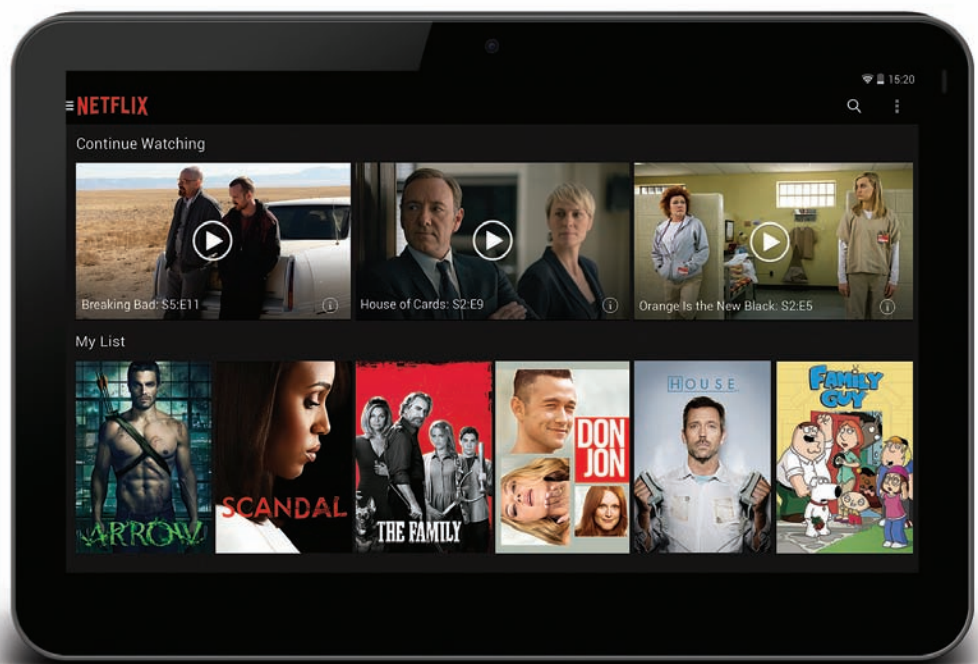
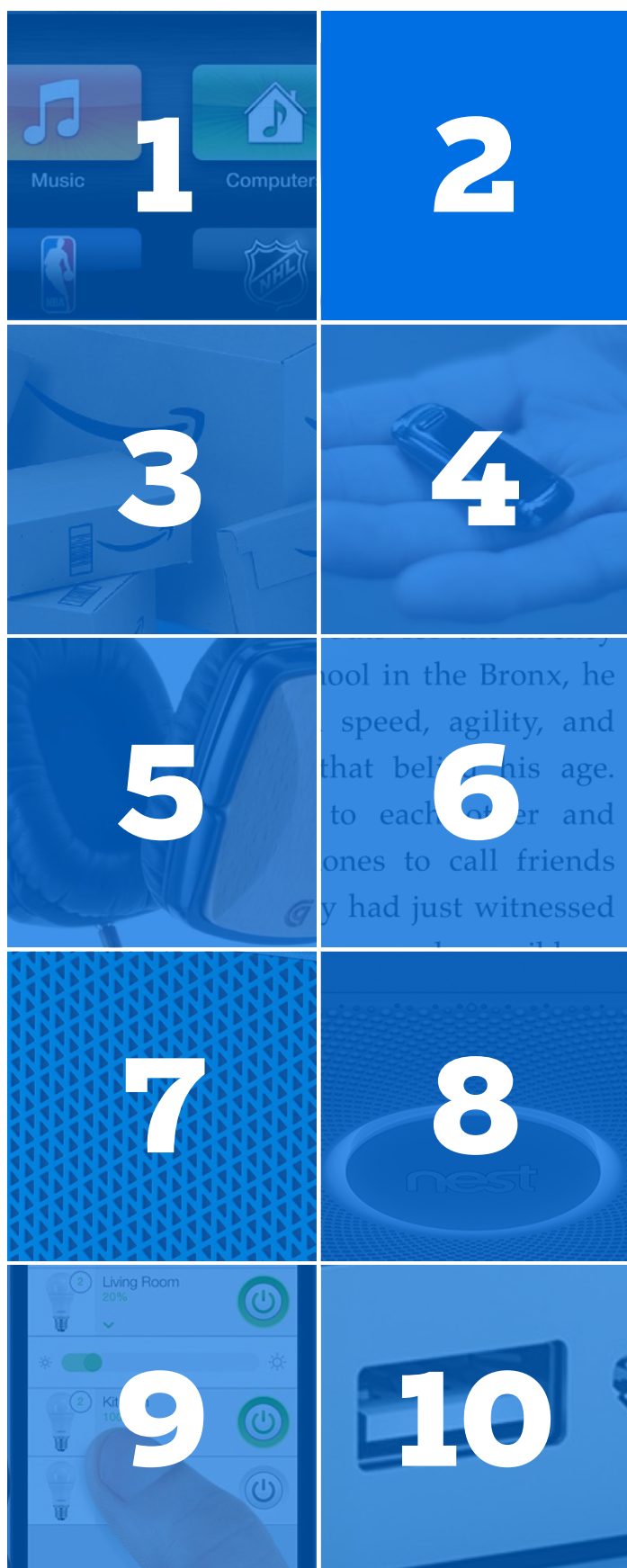
## Apple TV

\$99 / [apple.com](http://apple.com)

The Apple TV has not had a major update in recent years, but it's still one of the best ways to watch videos on an HDTV. Setup is easy, and in just a few minutes you'll be catching up on your favorite TV shows and blockbuster movies. If you have an iPhone, iPad, or iPod touch, the benefits are even more apparent thanks to AirPlay support and the ability to use those devices as a remote control.

# 10 Holiday Tech Gifts For Less Than \$100

BY PC MAGAZINE STAFF



## Netflix

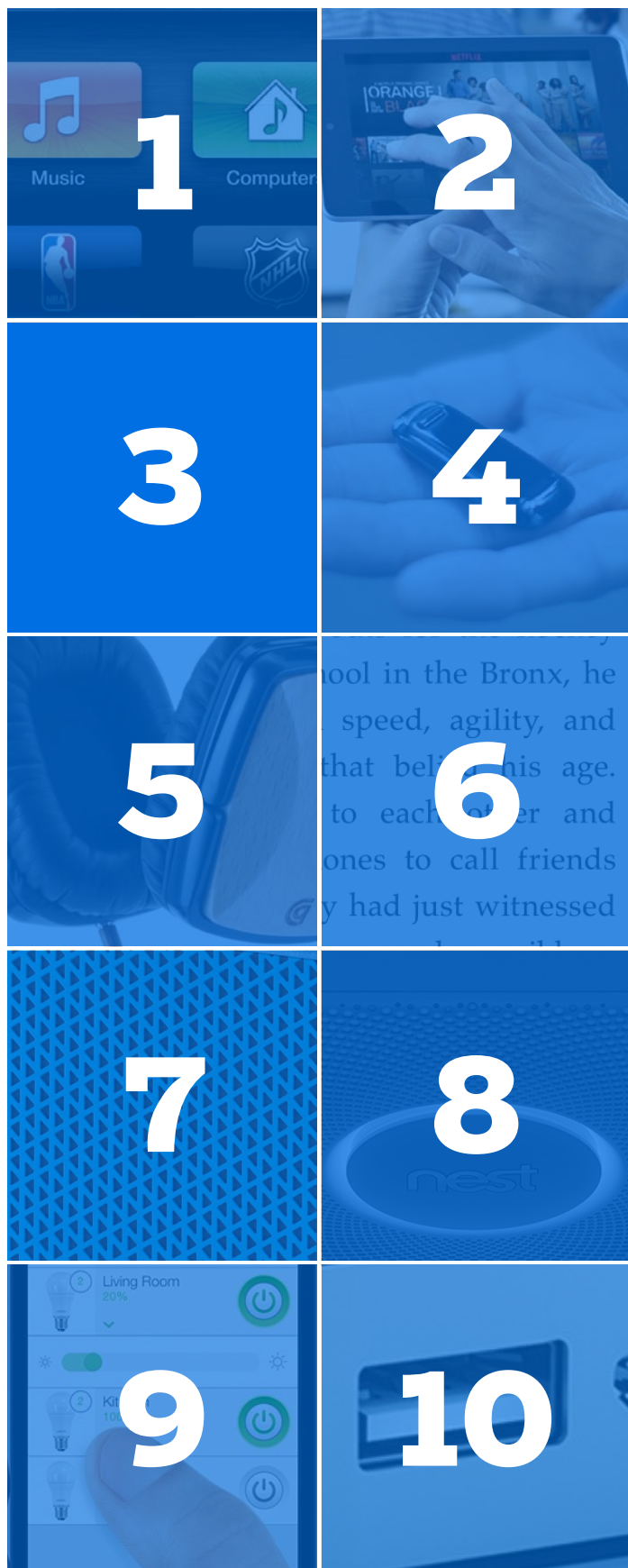
\$7.99 per month / [netflix.com](http://netflix.com)

One of the services you can access on your Apple TV is Netflix, your one-stop shop for quality binge-watching. Not only can you find your favorite movies and TV shows, but Netflix also has a growing library of impressive (and addictive) original programming of its own, from the political thriller *House of Cards* to the prison dramedy *Orange Is the New Black*. For \$7.99 per month, it's a good deal.



# 10 Holiday Tech Gifts For Less Than \$100

BY PC MAGAZINE STAFF



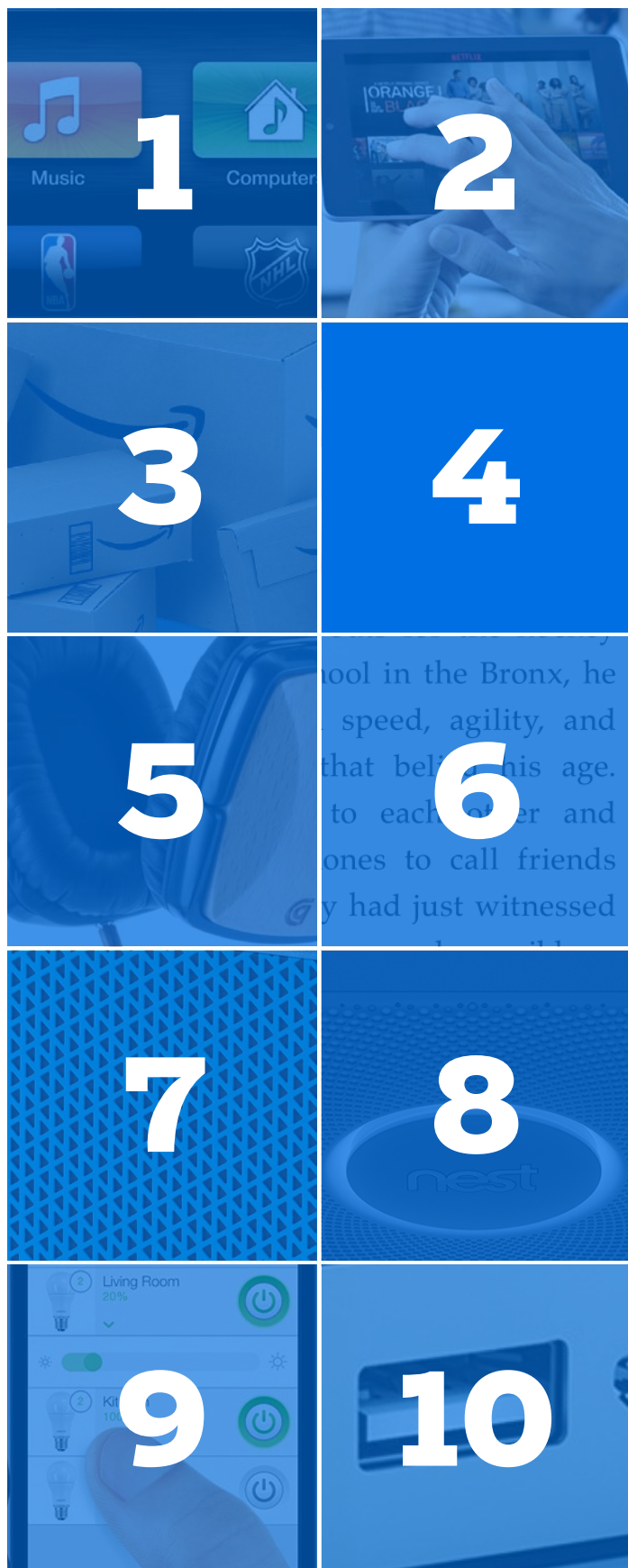
## Amazon Prime

\$99 per year / [amazon.com](https://www.amazon.com)

Like Netflix, Amazon Prime also offers access to a library of streaming movies and TV shows. But for \$99 per year, you also get free two-day shipping, and Amazon recently added Prime Photos, which provides unlimited storage for all your snaps, no matter how big your selfie collection might be.

# 10 Holiday Tech Gifts For Less Than \$100

BY PC MAGAZINE STAFF



## Fitbit One

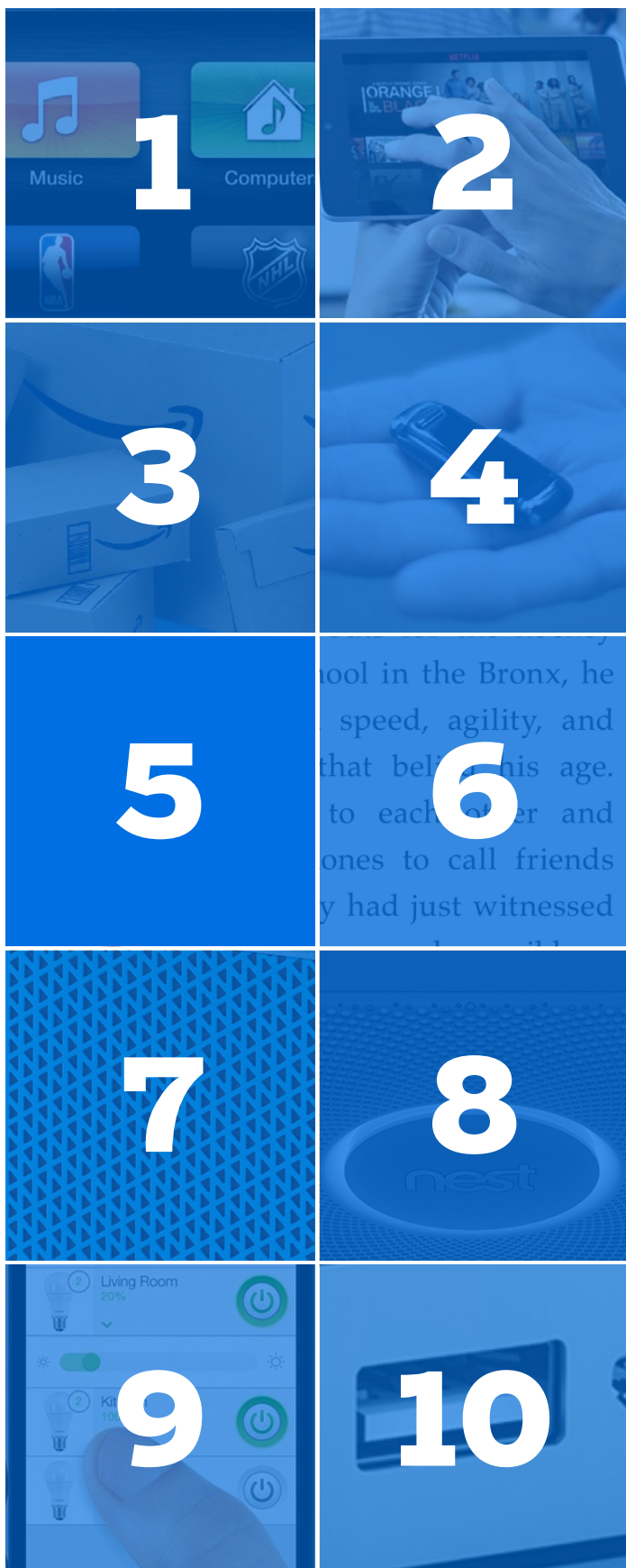
\$99.95 / [fitbit.com](http://fitbit.com)

The Fitbit One is a sleek, sturdy, and affordable device that can help you monitor your physical activity and motivate you to increase it. Just clip it onto a piece of clothing, and get stats on how many steps you take, floors you climb, and even how well you sleep. The Fitbit One also comes with a USB syncing component that wirelessly uploads data from your Fitbit to your Web account whenever you're nearby, so there's no messing with PC hookups.



# 10 Holiday Tech Gifts For Less Than \$100

BY PC MAGAZINE STAFF



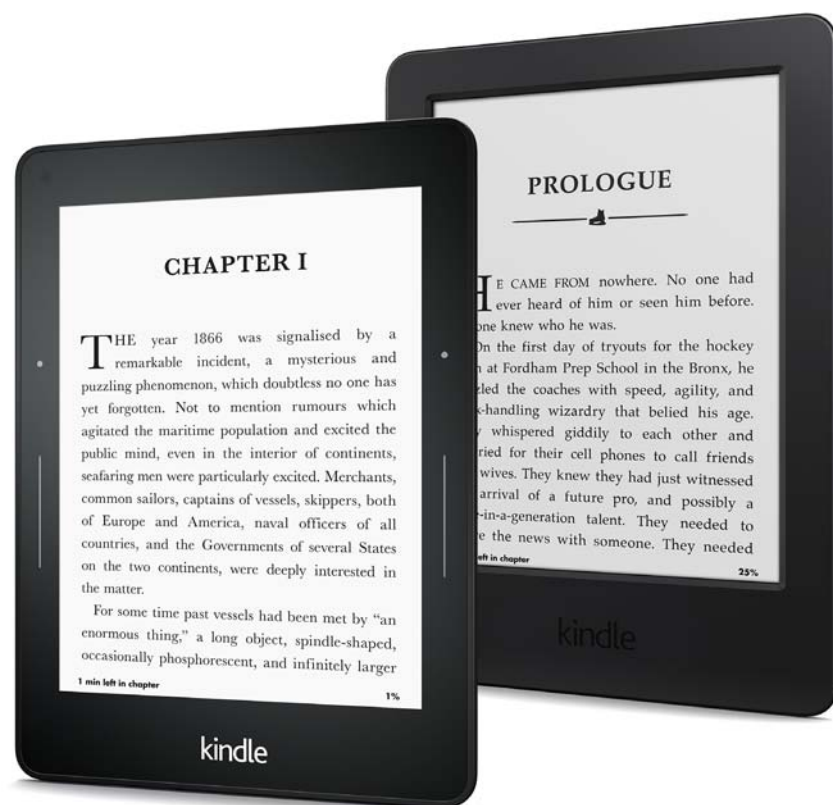
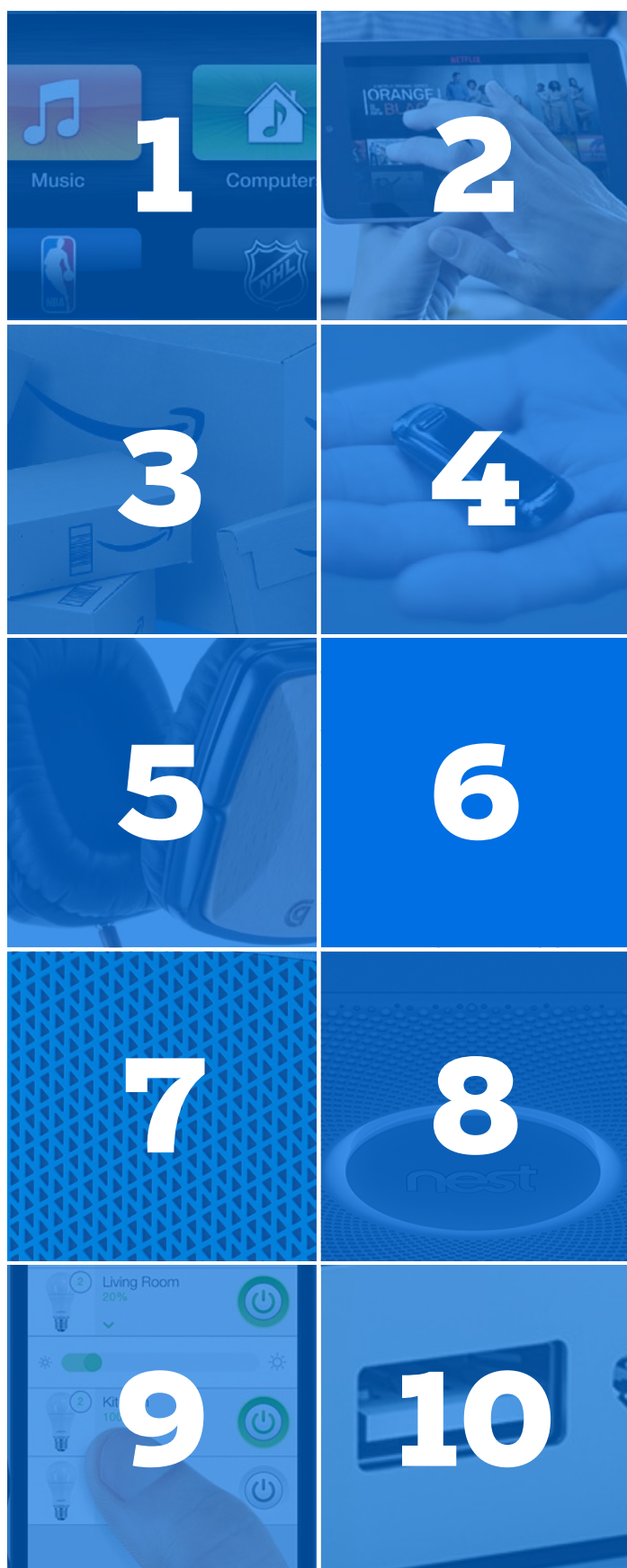
## Griffin WoodTones Headphones

\$99.99 / [griffintechnology.com](http://griffintechnology.com)

Inexpensive headphones don't have to look or sound bad. The real wooden housings on the earcups of the Griffin WoodTones Over-the-Ear Headphones add a touch of class to the pair, which also delivers solid audio performance complete with rich lows and crisp highs. For the balance-minded listener who's looking for a different design, these headphones have plenty to offer.

# 10 Holiday Tech Gifts For Less Than \$100

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## Amazon Kindle

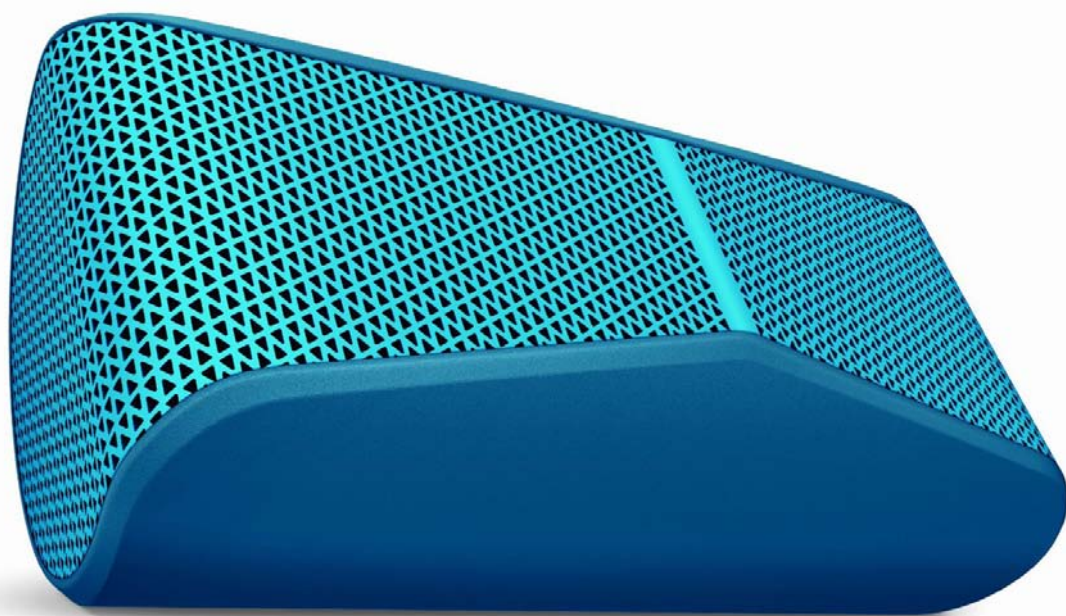
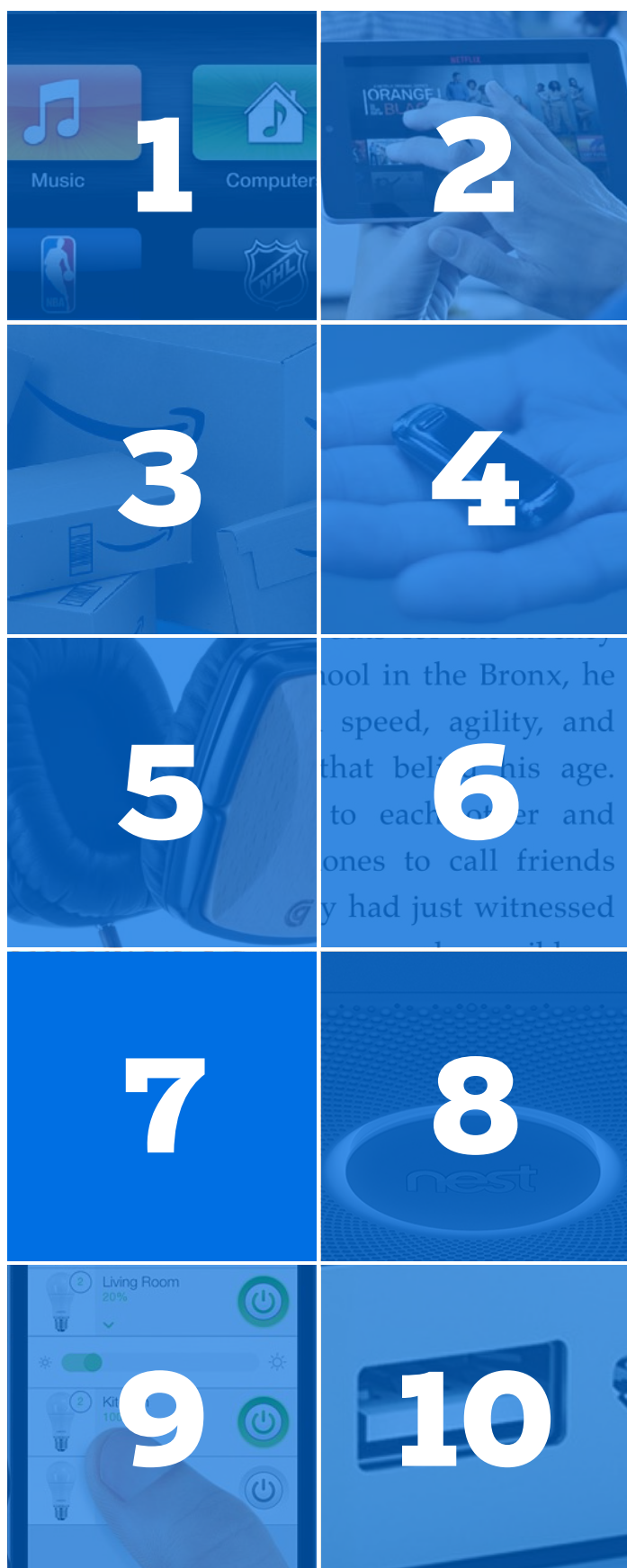
\$79 / [amazon.com](http://amazon.com)

Readers are increasingly trading paper books for ebooks, but one drawback to reading on your phone or tablet is the glare from the display. With a black-and-white, E Ink screen, however, Amazon's basic Kindle is easy on the eyes—and its \$79 price is easy on the wallet. The most recent version adds a touch screen, making it a true bargain for those who want to keep up with their favorite titles on the commute, at the beach, or just lying in bed.



# 10 Holiday Tech Gifts For Less Than \$100

BY PC MAGAZINE STAFF

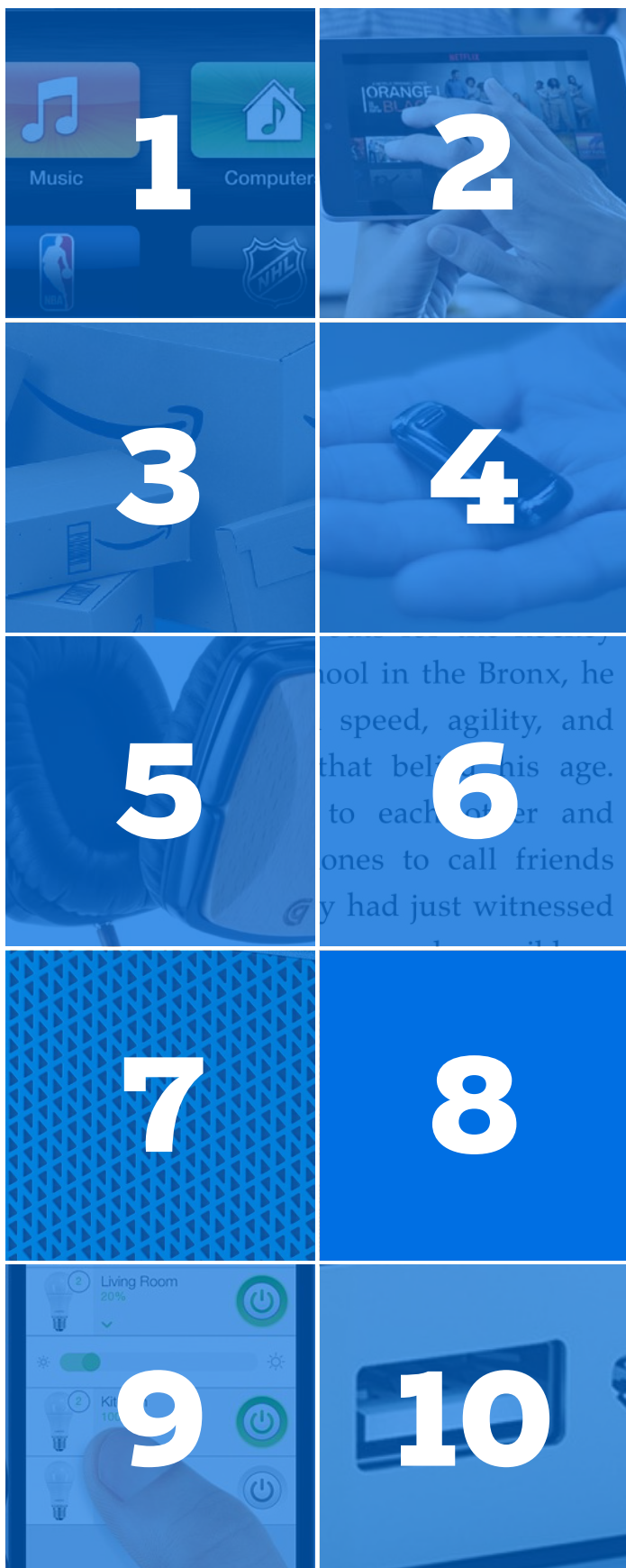


**Logitech X300 Mobile Wireless Speaker**  
\$69.99 / [logitech.com](http://logitech.com)

The Logitech X300 Bluetooth speaker may be tiny—it measures just 2.7 by 5.9 by 2.8 inches (HWD)—but it's capable of turning out powerful, room-filling sound, and it costs only a fraction of what you'd pay for a larger or more bass-heavy wireless speaker. The X300 is available in four bright color combinations, and it even has a built-in speakerphone so you won't miss a call even when you're listening to your favorite music.

# 10 Holiday Tech Gifts For Less Than \$100

BY PC MAGAZINE STAFF



## Nest Protect

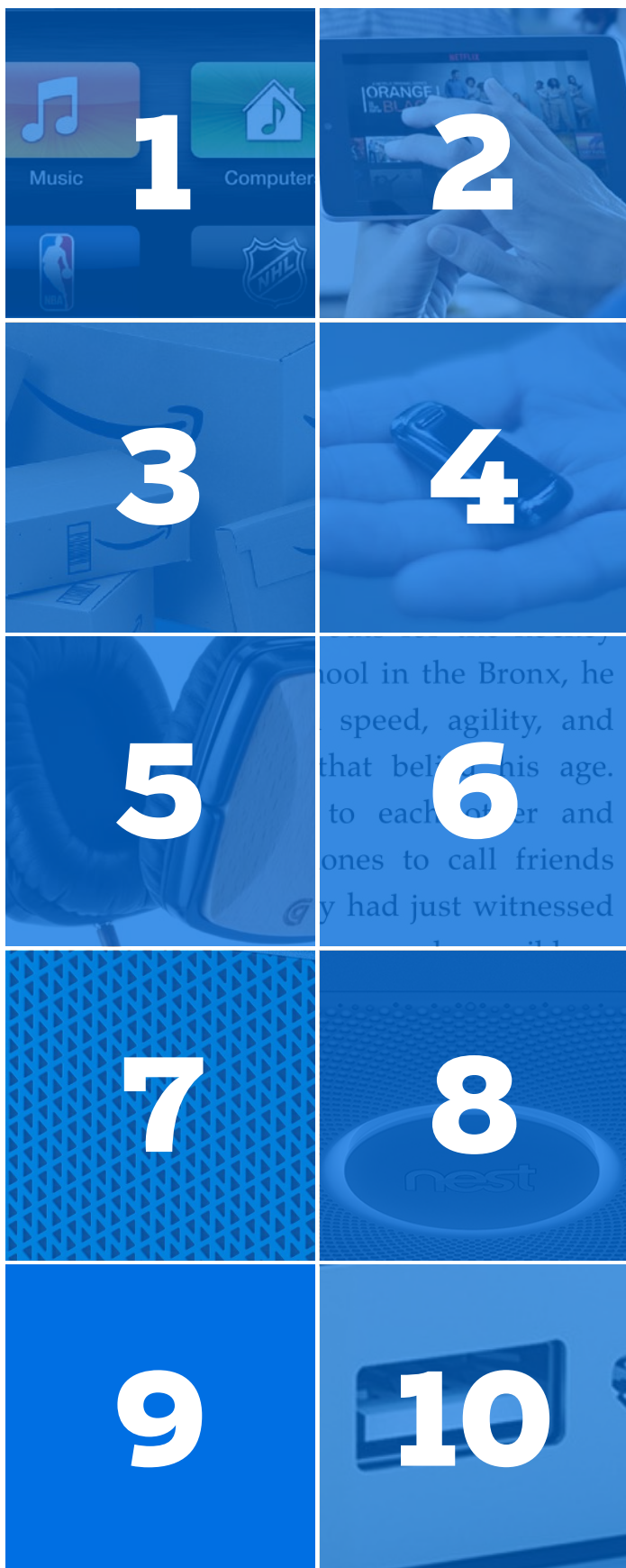
\$99 / [nest.com](https://nest.com)

The Internet of Things (IoT) has been a big buzzword in the tech community as of late, and this is one example. The now-Google-owned Nest made a name for itself with its Learning Thermostat a couple of years ago, but has now expanded its lineup with the Protect. This is one of the smartest smoke and carbon monoxide detectors you'll find; you can monitor and manage it using a smartphone app.



# 10 Holiday Tech Gifts For Less Than \$100

BY PC MAGAZINE STAFF



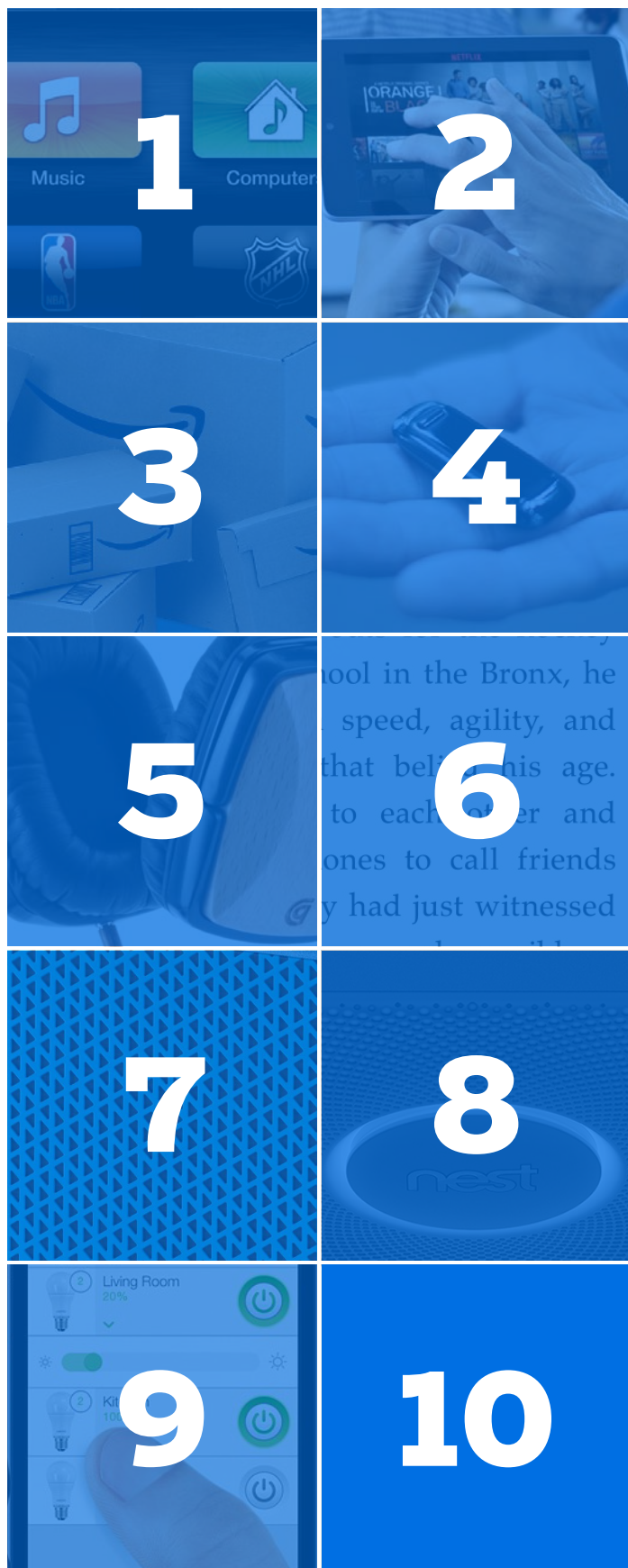
## **Belkin Wemo LED Lighting Starter Kit**

\$99.99 / [belkin.com](http://belkin.com)

For more IoT fun, the Belkin WeMo LED Lighting Starter Set is a connected lighting system that works with other WeMo products. It uses your existing Wi-Fi network to connect to the Internet, letting you control the two included lights (both white) right from your smartphone. Installation is easy, as is setting up automations that turn your lights on or off at the times you specify.

# 10 Holiday Tech Gifts For Less Than \$100

BY PC MAGAZINE STAFF



## **mophie juice pack powerstation duo**

\$99.95 / [mophie.com](http://mophie.com)

Undoubtedly one of the nicer-looking and better-feeling portable batteries out there, mophie's juice pack powerstation duo will add significant power to a variety of USB-powered mobile devices. It performed admirably in our battery tests, making it a good choice for those who value form as well as function.



# Splurge-Worthy Gifts

BY ERIC GRIFFITH

## GARMIN FORERUNNER 920XT

Wearables are a dime a dozen, especially if you want heart rate monitoring. There's a reason Garmin calls its Forerunner 920XT a "multi-sport watch," however—it does a lot more than track a pulse. It's for serious athletes who need to track their full running dynamics, swimming metrics, and more. The 920XT pairs with smartphone app, which in turn integrates your workout with social media via the Garmin Connect community. The "watch" itself is a sleek-looking device obviously made for active use. It even pairs with other Garmin sensors so you can get full stats on your performance doing other activities, like biking (obviously, it's great for triathletes).

**\$449.99**[garmin.com](http://garmin.com)

# Splurge-Worthy Gifts

BY ERIC GRIFFITH



## LOGITECH HARMONY ULTIMATE HOME

The lowly remote control is still essential to the modern couch potato. But lately, remotes can also do more than change the channel—they can also dim lights, control temperature, or turn on music. That's where Logitech says the latest Harmony Ultimate products come in. The Harmony Home Hub has expanded from controlling home theaters to interacting with just about every home automation and control product on the market, from vendors like Philips, Nest, August, Honeywell, Kwikset, Lutron, PEQ, Schlage, SmartThings, Sylvania, Yale, and Zuli. There are two remote options, one with a touch screen on the remote itself. It's exactly what you want for total home control.

**\$349.99** [myharmony.com](http://myharmony.com)





# Splurge-Worthy Gifts

BY ERIC GRIFFITH

## CELESTRON NEXSTAR EVOLUTION 8 TELESCOPE

Budding and experienced astronomers alike need a good telescope, and it's hard to find better than this 8-inch Schmidt-Cassegrain optical tube with StarBright XLT optical coatings. It's Fastar (Hyperstar) compatible, meaning it's a breeze to mount a camera to take pictures of deep-space objects. What makes the Evolution 8 a full-on gadget for future Neil Degrasse-Tyson is integrated Wi-Fi, which lets you control it via an app on your tablet or phone—it'll swivel the camera directly to the celestial body you designate on the app. Or you can default back to the hand controls. Either way, prep for night after night of intense stargazing.

**\$1,599.95**[celestron.com](http://celestron.com)

# Splurge-Worthy Gifts

BY ERIC GRIFFITH

## ALIENWARE AREA-51 GAMING DESKTOP

A triangular PC? No, it's really more of a hexagon. Alienware's latest Area-51 desktop (it calls the design a "triad chassis") is all about efficient cooling, so gamers can purchase the highest-end components: the kind that run hot so the gaming is smooth. It also helps in physically pivoting the computer forward, to access rear ports. Plus, it looks totally cool, which isn't something you can say about most desktop PCs. Each Area-51 has an 850- or 1,500-watt power supply; the insides include overclocked, liquid-cooled fourth-gen Intel Core i7 processors, with variations on memory, drive space, and graphics—it can hold up to five drives (hard or solid-state) plus three full-length double-wide video cards. The price can top \$4,500 for the high-end version. It even has software to customize the LED lights on the case.

Starting at \$1,699

[alienware.com](http://alienware.com)





# Splurge-Worthy Gifts

BY ERIC GRIFFITH



## SONY BRAVIA KDL-70W850B TV

The HDTVs in the Sony Bravia KDL-W850B series are reasonably priced edge-lit LED screens. The blacks on the screen are dark and inky, courtesy of the X-Reality PRO picture engine; the features on the set are generous (including a remote with dedicated Netflix and Football buttons). There's a wedge design when viewed from the side; its thickness tapers at the top of the screen, from 3.8 inches to just 0.9 inch. For a 69.5-inch television, it's hard to believe it's only two grand.

**\$2,099.99** [store.sony.com](http://store.sony.com)





# Great Gadget Ideas for Men and Women

Need help shopping for the special guy or gal in your life? Buy him or her an unforgettable and unique tech gift. BY CHLOE ALBANESIUS AND EVAN DASHEVSKY





# Gifts for the Ladies

## 1. Tory Burch Fitbit

Wearables are popular, but are they fashionable? Enter designer Tory Burch, who has added a little sophistication to Fitbit activity trackers. The collection includes two basic options: a brass pendant on a chain (\$175) and a brass cuff bracelet (\$195). Both are available in silver, gold, and rose gold.

\$175-195 / [toryburch.com](http://toryburch.com)



## 2. Netatmo June

The June by Netatmo is a piece of jewelry that helps protect your skin from the sun by alerting you when you've had too much exposure for the day. It's not waterproof, and it's a one-trick pony, but from a fashion point of view, it's undeniably charming.

\$99 / [netatmo.com](http://netatmo.com)



## 3. Kohler Moxie showerhead + wireless speaker

Combining a high-quality showerhead and a removable Bluetooth speaker, the Kohler Moxie showerhead + wireless speaker brings good-sounding music right into your shower. It's a bit pricey, but you won't find a better way to make your morning routine more conveniently tuneful.

\$199 / [us.kohler.com](http://us.kohler.com)



## 4. Withings Aura

Instead of simply monitoring your sleep, the Withings Aura helps you fall asleep and wake up with ambient noise, a smart alarm clock, and different colored lights. It's a little pricey, but definitely stylish.

\$299.95 / [withings.com](http://withings.com)



## 5. Click and Grow Smart Herb Garden

Gardening is a lovely thought, but many of us don't have the time (or space) to grow our own food. The Click & Grow Smart Herb Garden is an easy way for anyone to grow fresh herbs at home all year round, or just get their feet wet before taking on more ambitious gardening projects.

\$99.95 / [clickandgrow.com](http://clickandgrow.com)



# Gifts for the Gents

## 1. Robomow RM510

The future of sloth has arrived! The Robomow RM510 will keep your lawn (up to 5,400 square feet) in check, and can function under remote control or in automatic mode. But don't fear for your toes: If the machine's bumper senses an obstacle (like, say, a rock, a pet, or you), the blades shut off and the lawnbot moves in the opposite direction.

\$1,099 / robomow.com



## 2. Grillbot

Are you going to spend a perfectly nice day chipping away at the charred burger bits that are still plastered to your grill from last year? Heck, no—that's why we have robots. Specifically, the Grillbot, which walks along the inside of your grill and take care of that bit of nastiness for you.

\$129.95 / grillbots.com



## 5. Nerf N-Strike Elite Nerf Cam ECS-12 Blaster

Sure it's fun to annoy and harass your friends by pelting them with squishy, spongy Nerf bullets. But it's even more fun to have visual documentation of the incident. That's where this cunning toy blaster comes in handy. It's fitted with a 1.77-inch color screen so you can relive your victims' demise time and time again. The N-Strike even lets you capture photos and images to download and share later.

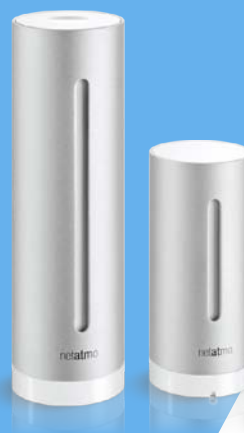
\$79.99 / hasbro.com



## Netatmo Weather Station

We can all be meteorologists with the Netatmo Weather Station, which fills your smartphone with up-to-the-minute weather data from your surrounding area including humidity, wind, and even CO2 levels. If the man in your life likes to nerd-out on occasion, this is the gift for him!

\$179.99 / netatmo.com



## 4. Magellan RoadMate 6230-LM Dashcam Navigator

Starting in 2015, all new cars will need to have a rearview camera. If the fella in your life doesn't already have one installed in his car, he can add one with a Magellan RoadMate Navigator. It also has GPS Navigation (with lifetime map updates) and dashcam, which will automatically begin recording when it senses any sudden shocks.

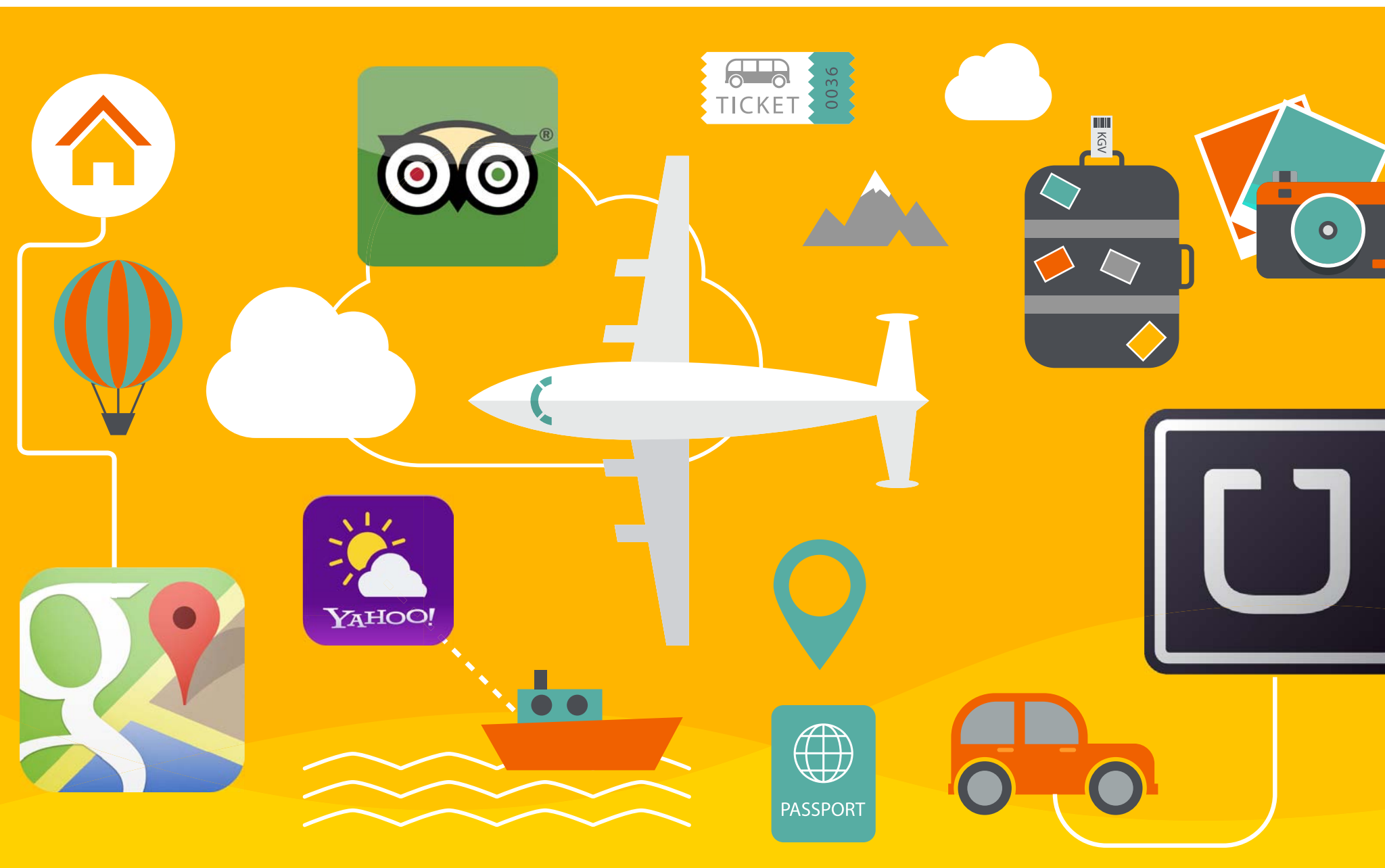
\$229.99 / magellan.com





# Apps to Help You Survive Holiday Travel

BY CHLOE ALBANESIUS



**T**he holidays are upon us, and unless you're playing host or lying low this year, chances are you'll be among those taking planes, trains, and automobiles all over the globe for some togetherness with loved ones.

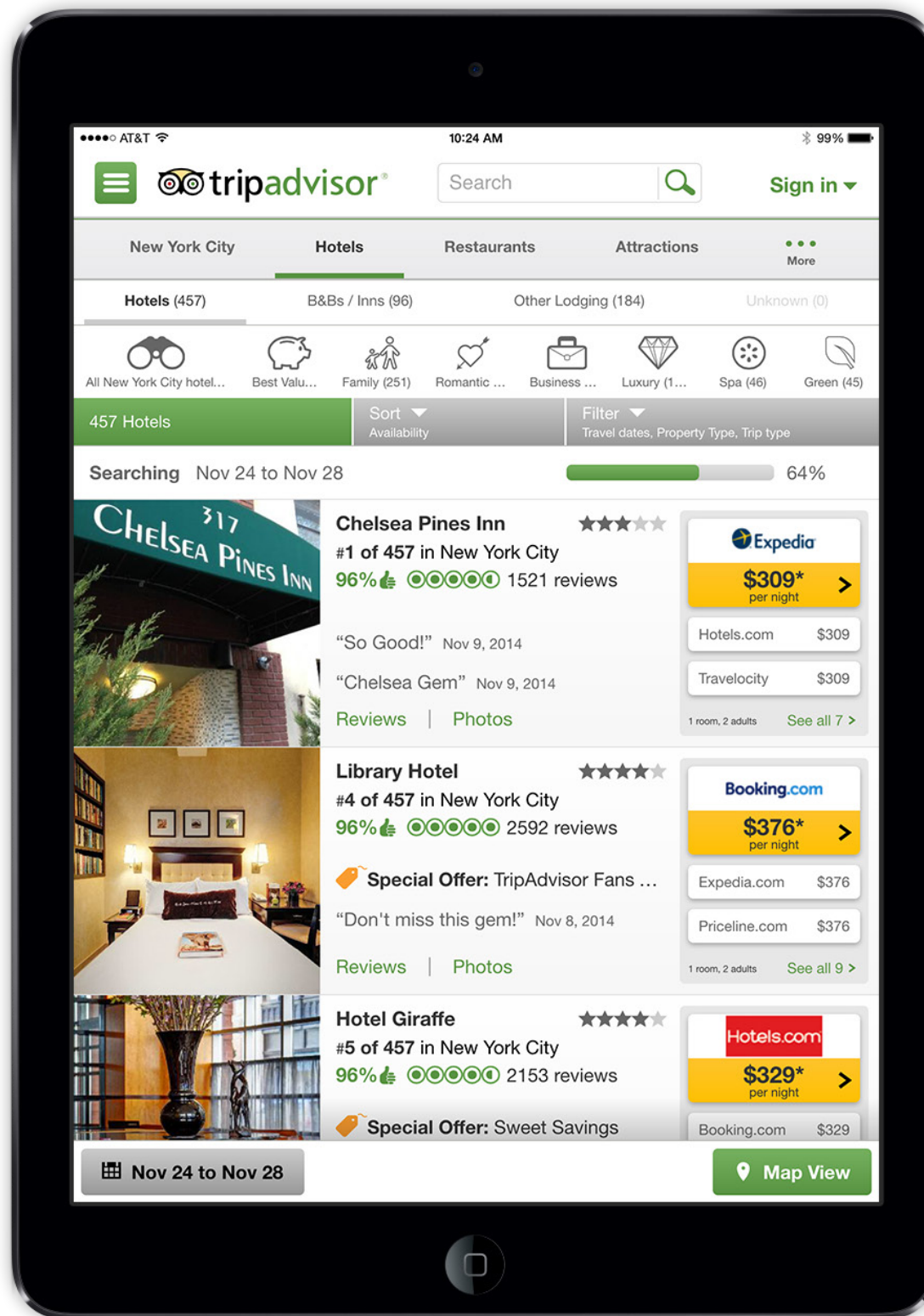
But let's face it: Traveling over the river and through the woods can be a nightmare. From airport security lines to interstate traffic jams, getting from point A to point B is enough to put some people over the edge. Don't be that person; help is in the palm of your hand.

Take a few deep breaths and download these apps for a calmer, more organized holiday travel experience. Until we have teleportation and a robot to cook us a holiday feast, they're the next best thing.

## **BOOKING:** TripAdvisor

Free ■ Android ■ iOS ■ Windows

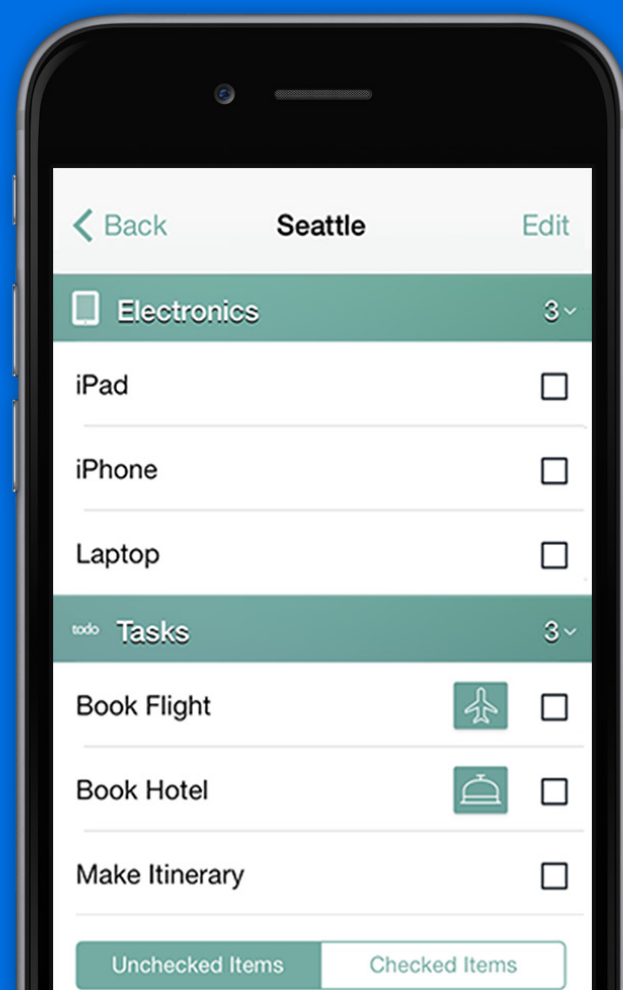
If you're not bunking in with cousins or siblings, chances are you'll need a hotel room where you can doze off after one too many cookies or glasses of eggnog. To make sure your hotel is not facing a highway, full of rowdy revelers, or otherwise undesirable, check out the reviews on TripAdvisor, which offers the most comprehensive look at hotels from around the globe, straight from the people who stayed there. Or if your idea of a holiday feast is making reservations, you can also peruse local restaurant reviews.



## **PACKING:** TripList

Free ■ Android ■ iOS

You always forget something, right? Download a packing app to make sure you have your toothbrush, cell-phone charger, and deodorant before you leave the house. With TripList, create a running list of things you need to bring and tick them off as you pack. A \$1.99 in-app purchase upgrades you to the Pro version, which lets you add more than one profile if you're packing for the entire family.







## AIRPORT HUSTLE GateGuru

Free ■ Android ■ iOS ■ Windows

If you're flying, GateGuru is a one-stop shop for information about your flight and the airports you'll be using. Get real-time updates about delays, gate changes, and estimated security line wait times. Maps will help you get around the airport, and once you're at the gate, use GateGuru to find the best place to grab some food or reading material for the long flight ahead. A deal with Avis also allows for in-app car rental bookings if you need a ride once you get to your destination.



## WEATHER: Yahoo Weather

Free ■ Android ■ iOS

Weather apps are a dime a dozen, but Yahoo's offering pulls in beautiful photos from Flickr for a visually appealing way to check if you'll need a jacket or umbrella. There are no ads, and Yahoo Weather lets you set up two notifications per day, which will display an emoji of the conditions along with the high and low temperatures. It'll detect your current location when you fire it up, but you can add a number of cities to your profile, the conditions for which are just a left swipe away.

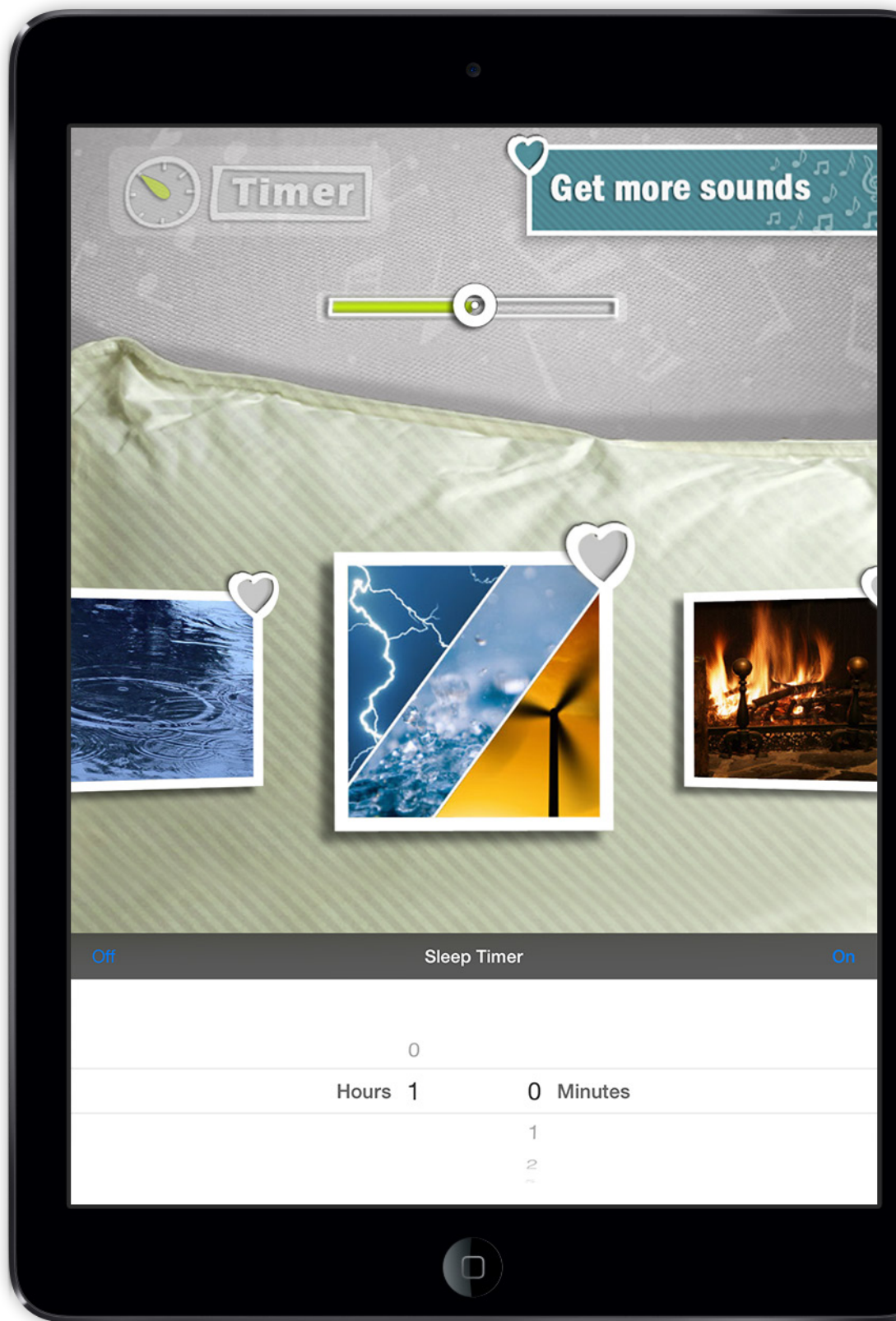
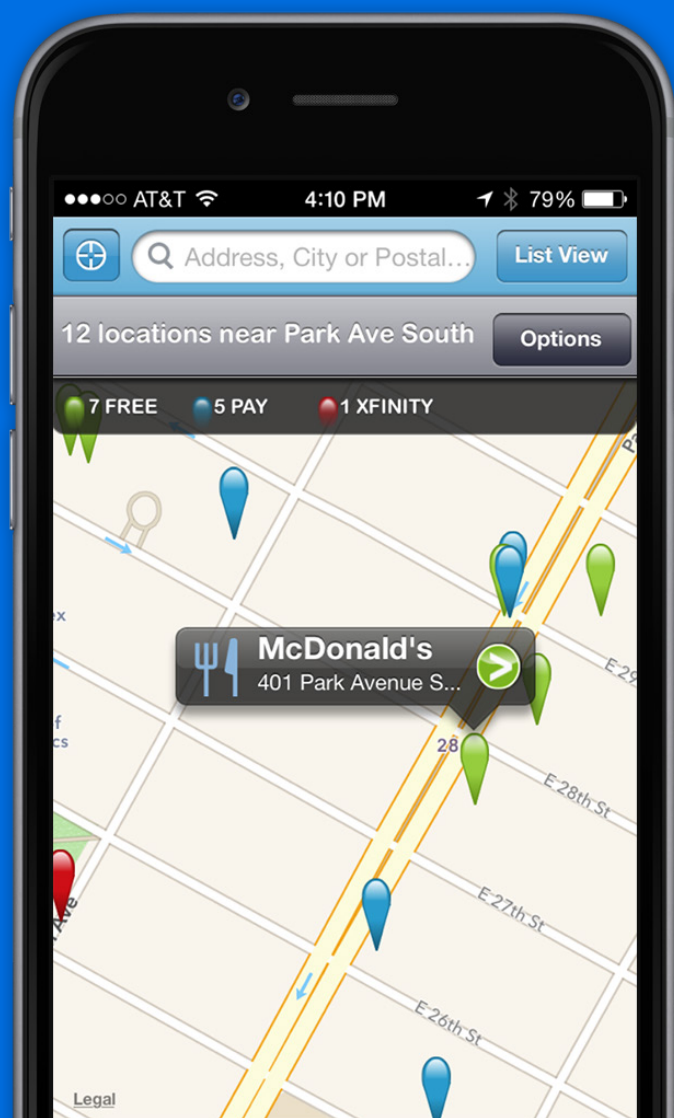




## NETWORKING: Wi-Fi Finder

Free - \$10/month ■ Android ■ iOS

Though some might say the holidays are a time to unplug and enjoy family and friends, the reality is you'll probably still be checking your email, updating Instagram, and tweeting quotes from the dinner table. Some of you might even be working. And if you're out and about in a new town, and in need of some Internet connectivity, where's the best place to sign on? Wi-Fi Finder will help you locate nearby hotspots. Just fire it up, give the app access to your location, and the app will populate a map with networks in the area: green pins for free Wi-Fi, blue ones for those that require a password or some sort of payment.



## DOSING OFF: Sleep Pillow Sounds

Free ■ Android ■ iOS ■ Windows

It can be tough to fall asleep in a new environment. Maybe it's a little too quiet, or the tick-tock of the hallway clock is driving you nuts. Try a little white noise with an app like Sleep Pillow Sounds, which offers up sounds like rain, thunderstorms, a roaring fire, the beach, jungle noises, whales, soothing music, a lullaby, and a metronome. Set for continuous play or set a shut-off timer. Upgrade to the Pro version for more sounds and timer options.

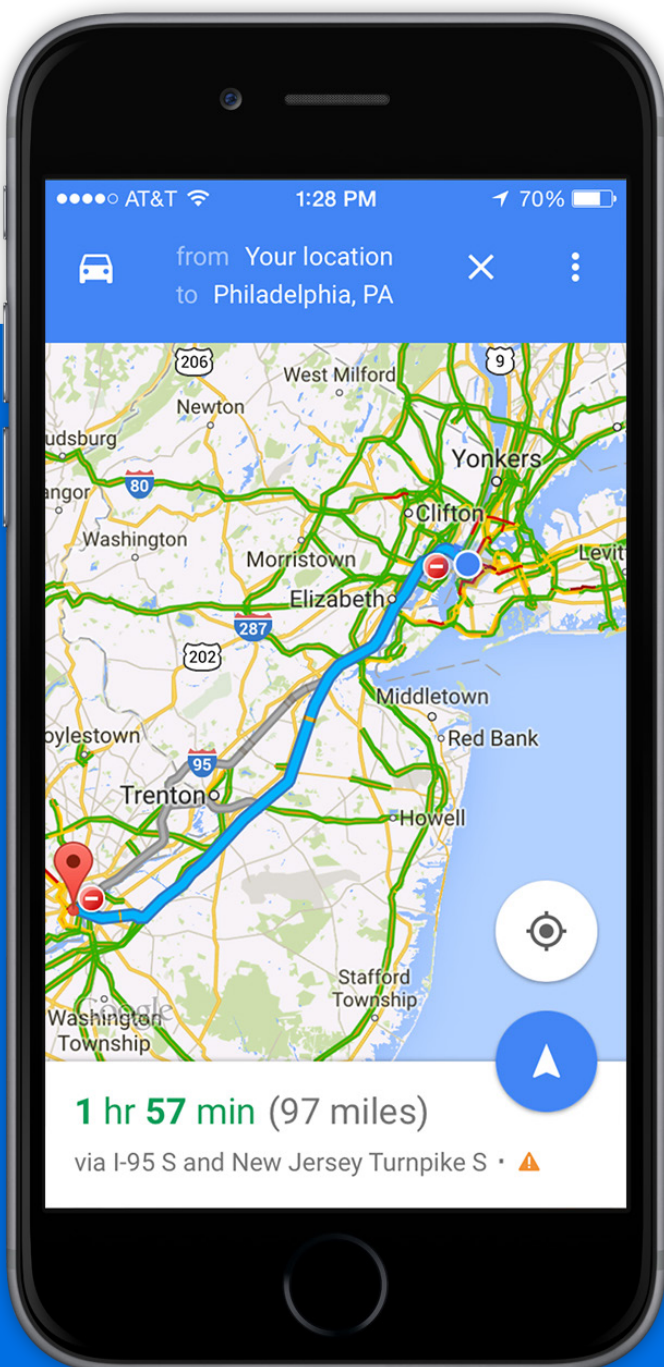
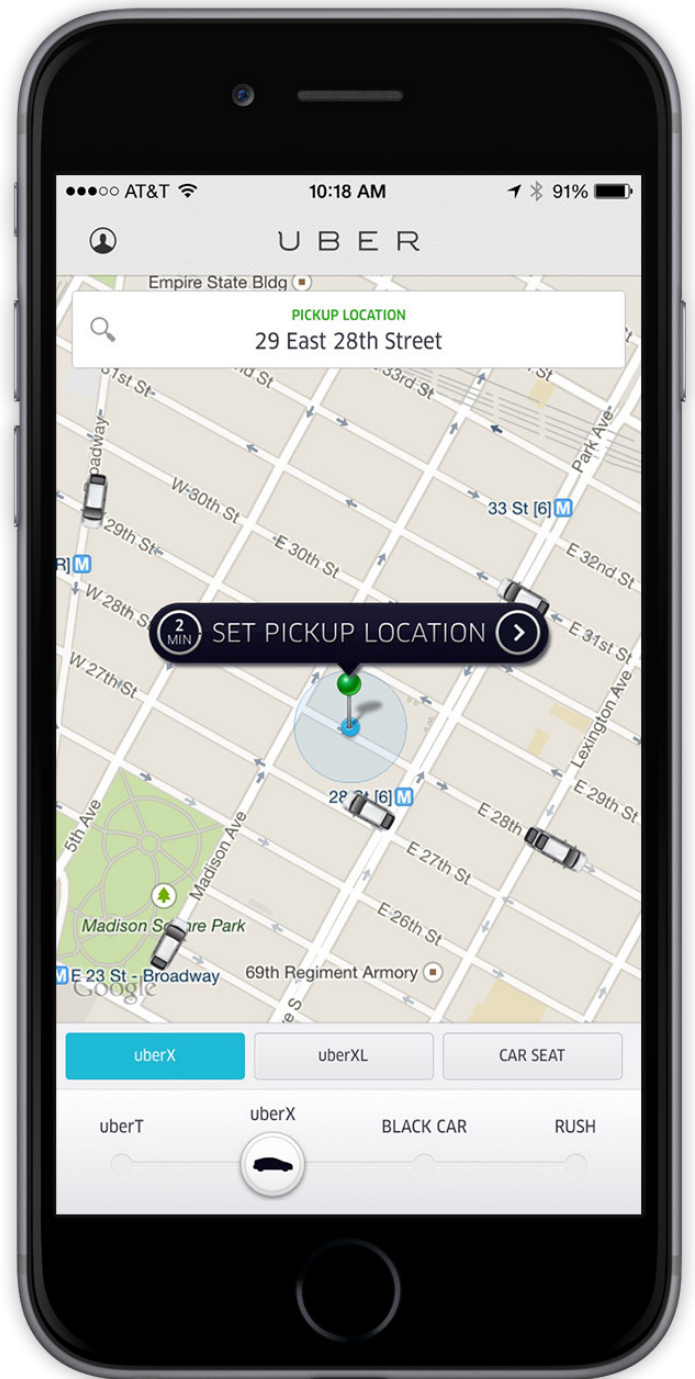




# TRANSPORTATION: Uber

Free ■ Android ■ iOS ■ Windows

Whether you need a lift to the airport or a designated driver after an evening sampling fine wines, you shouldn't waste time standing in the cold and trying to flag down a cab. A much better solution is to use an app-based ride-sharing service. They're expanding into new cities every day, so chances are you can summon a car to your doorstep with just a few taps. Our favorite is Uber, which is available in the most cities. Just keep an eye on that surge pricing.



# FIND YOUR OWN WAY Google Maps

Free ■ Android ■ iOS

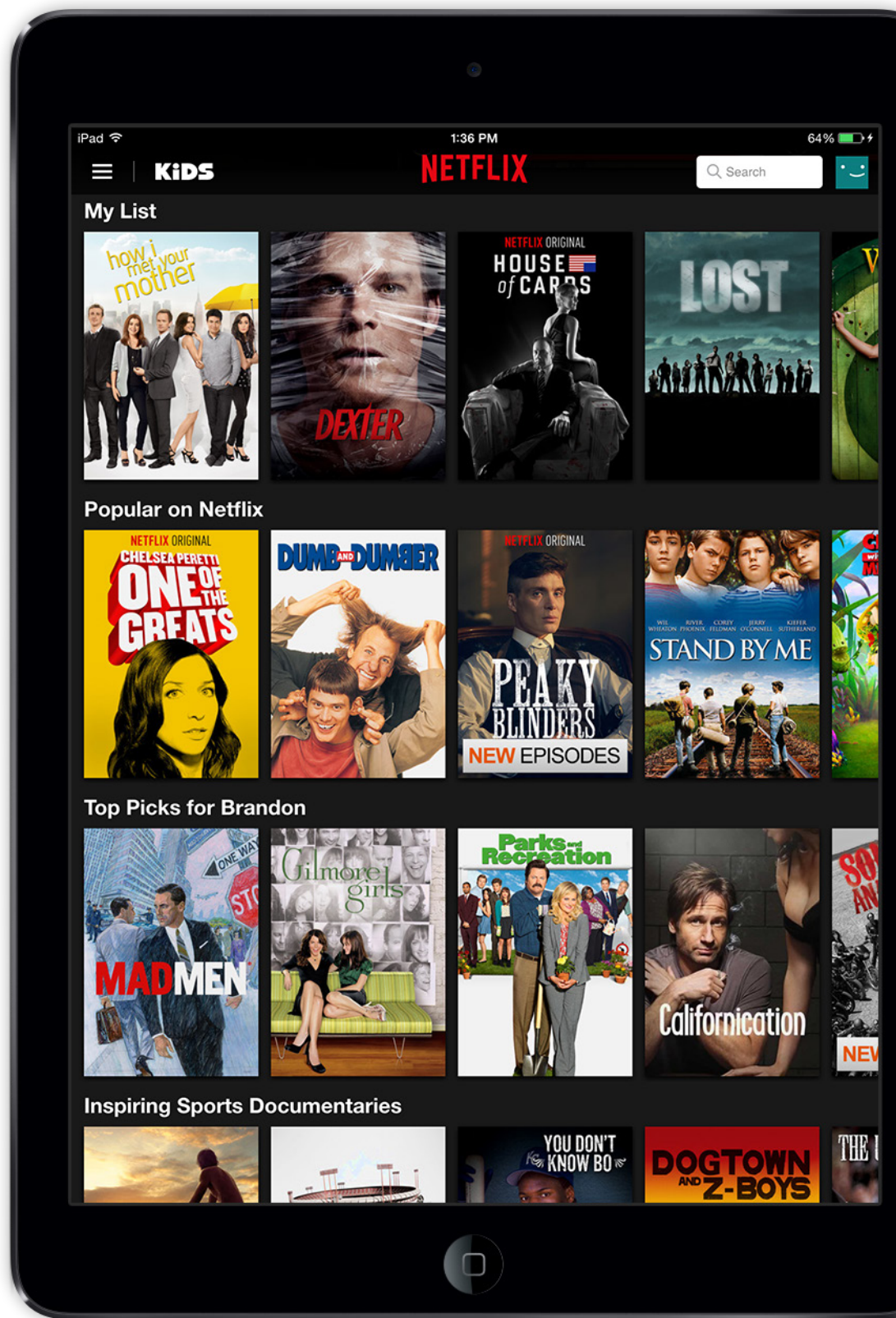
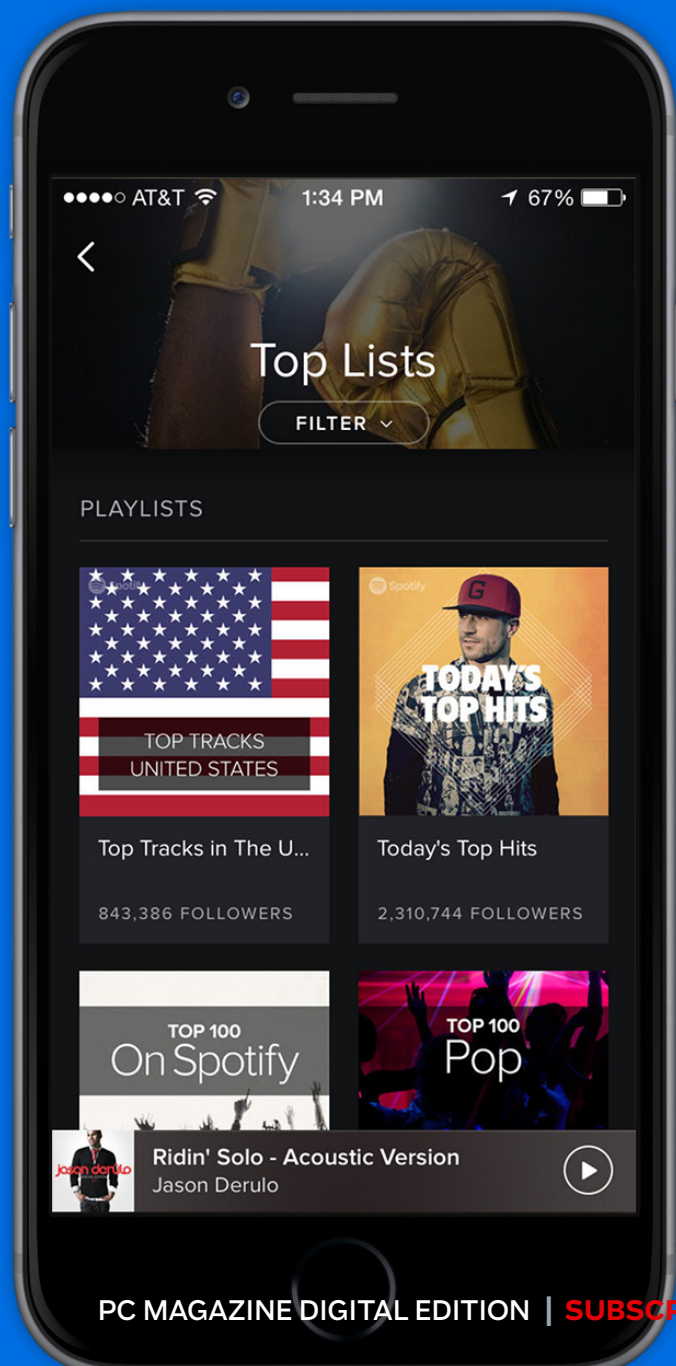
Should you take the next exit or stay on the highway? Bridge or tunnel? Gas now or later? With Google Maps, you'll never have to ask those questions again. The search giant's mapping solution is arguably the best way to find your way (sorry, Apple Maps), with up-to-the-minute traffic reports, alternate route options, Street View imagery, turn-by-turn directions, nearby rest stops and attractions, and more. Unless your phone has no service, it's pretty hard to get lost with Google Maps on your phone.





## AMBIANCE: Spotify

Free - \$10/month ■ Android ■ iOS  
If your mom has played that Kenny G Christmas album one too many times, try the streaming music service Spotify. Connect your smartphone to a Bluetooth speaker and give your guests a little background music as they argue about politics at the dinner table. A free account will interrupt you every now and then with ads, and the smartphone will only stream playlists on shuffle, but a Premium upgrade (\$10 per month) will provide unlimited tunes that will liven up any holiday soiree.



## VEGGING OUT: NETFLIX

\$7.99/month ■ Android ■ iOS ■ Windows

Once food coma has set in, retire to the living room to watch a holiday classic with the whole family, give junior your iPad and let him binge-watch the Kids channel, or escape to your bed for a little post-holiday alone time. Most smart TVs, set-top boxes, and consoles have a Netflix app, but you can also “cast” content from a streaming stick like the Chromecast, connect a laptop via HDMI, or watch alone on a mobile device.



# Ask Alex

Tidings of tech tips for the holidays. BY ALEX COLON



**I'm on a tight budget this year. Is it okay to get someone an older-generation piece of tech as a holiday gift?**

—Rudolph the Red Tag Gifter

**Alex Says:** Giving the gift of tech can be pricey, and last year's generation is almost certain to be less expensive than this year's. That said, a year can often bring a big change in design and features, so it's important to do your research.

Let's take the iPad for example. Apple's latest, the iPad Air 2, is a considerable upgrade from last year's model. It's thinner, lighter, faster, and it has a better camera, among other changes. I'd say it's definitely worth the extra \$100. On the other hand, the new iPad mini 3 is hardly a notable improvement over the iPad mini 2. It adds a fingerprint sensor, along with the Apple SIM (if you get a cellular model) and a new gold color option. But for most people, those extra features won't be worth the extra money.

What about everything else? Reviews are a good place to start. So are comparison articles. Of course, you should also keep in mind the person you're buying for. A tech-obsessed teen is likely to be a lot more picky about which generation model they receive than a grandparent might be. And if you're still in doubt: Get a gift receipt.



# Ask Alex

Tidings of tech tips for the holidays. BY ALEX COLON



**My parents treat me like on-call tech support when I visit for the holidays. I don't mind helping, but I keep having to teach them the same things. What can I do to make these "lessons" stick better?**

—*I Saw Mommy Download Browser Bars*

**Alex Says:** Nothing—at least not if your parents are anything like mine. Sometimes I suspect they're faking it just so I'll come visit more often.

To tide them over between visits, however, you might want to check out [teachparentstech.org](http://teachparentstech.org). It's a site from Google that will teach your parents how to do everything from change their desktop wallpaper to crop photos to send an attachment via email. All of the information is spelled out clearly in a series of videos, by people who are far more patient than I could ever be. Or you can buy your parents a Fire HDX tablet from Amazon. It has a built in "Mayday" button that will automatically connect them with live tech support at any moment.

Of course, you can't expect to just hand your parents over to Google or Amazon and have all your problems solved. You'll still need to do some upkeep from time to time. I don't suggest tackling their latest tech issues over the phone, but I've had some luck over video chat, as that way it's much easier when you can actually see what the problem is. But if your parents don't know how to use video chat, well, good luck with that.





# Ask Alex

Tidings of tech tips for the holidays. BY ALEX COLON



**I'm on the fence about going digital with my holiday cards this year. Do you think digital cards convey the "holiday spirit" the same way traditional cards do? Or do they just look lazy?** —*Feliz Not-a-Card*

**Alex Says:** Let's face it. Come January 1, all those beautiful holiday cards you send out are going to disappear from the recipient's refrigerator door and go into the trash. That doesn't mean they weren't a lovely sentiment, but it does mean they aren't going to last nearly as long as a loaf of fruitcake.

So rather than send a stack of holiday cards destined for the garbage, why not write a love letter to Mother Earth by sending a digital holiday card instead? Sure, they aren't destined to stare anyone in the face for a month as they reach for the almond milk, but have you seen any digital cards lately? Some of them are really cool! They're also much easier to personalize. And call me simple, but those stupid Elf Yourself videos get me every time.

But perhaps the best argument for digital cards is just how much easier they are to send out. You probably already have an email address for just about everyone you know, so you can send your season's greetings to as many people as you like in one fell swoop. Trying to track down actual, physical addresses, on the other hand? That's a tradition I don't mind giving up.

**Have a question for Alex?** Send it to [askalex@pcmag.com](mailto:askalex@pcmag.com)





## Internet of Failings

**O**n the Internet, bad information propagates fast and becomes fact. Attempts to clean up the record are largely futile and the best you can hope for is that the matter simply fades from view, obfuscated by other bad information.

This problem is endemic to the 'Net largely because it's not controlled in any way and anyone can publish anything, including blatant lies. It's no wonder that two or three times a year legitimate old-fashioned media outlets get bamboozled by The Onion and regurgitate various satires as fact.

Who knows how many silly April Fools jokes have been taken seriously because they remain on the net and reappear in search results all year 'round rather than just on April 1?

Wikipedia, too, is subject to nonsensical entries that are picked up and spread around. People always say that the Wikipedia cannot be trusted and everything from it needs to be independently verified. But independently verified by what other source? To get facts nowadays you have to ask the person involved.

But ask the 'Net about anything and you're flying blind. It's become a labyrinth of errors, bad advice, crackpot theories, contradictions, fictions posing as fact, and outright lies. Much of this confusion is designed to sell products.

Take the climate change controversy, for example. Can someone produce the definitive global temperature averages for the last decade? One crowd says everything is heating up, and has the charts to prove it. Another group says



everything is cooling down, and has the charts to prove it. Another group says there's no change, and has the charts to prove it. Each group insists it can prove the other two groups are lying.

It's outrageous. This is the tip of the information iceberg. It is out of control at all levels.

We always knew that the Web was no good for researching histories. The amount of new information being created on a daily basis swamps the system and makes it impossible to digitize old stuff. And when someone tried to digitize old stuff, like Google, Microsoft, and Archive.org, it did not go well.

Google has a slew of material that should be public domain or considered abandoned works. But agreements with various publishers and writers groups have limited the public access. Microsoft just bailed out. And Archive.org is disorganized. So Wikipedia picks up the slack, but it does so poorly.

Within a few years the Internet will be close to useless as a source of useful and consequential accurate information.

It's becoming more and more clear that the only use for the Internet, specifically the Web, will be for e-commerce. Are you looking for some obscure herbal remedy? The Internet is your best bet. You will not be able to get any actual reviews or analysis because fake review sites shilling for the various brands will dominate any search results. But you can buy it!

The irony, of course, is that during the formative years of the Internet and the subsequent Web, any attempt to advertise or sell products was shouted down by the early adopters who believed this was an abomination and a misuse of what should become a public resource.

Ha, the joke is on them.



**The idea that  
“you can find  
anything on  
the Internet”  
changed to  
“you can find  
anything on  
the Internet for  
a fee and we  
can’t guarantee  
any accuracy  
whatsoever.”**



The Internet was recognized as a cheap medium on which you could start a business with almost no overhead. You could sell anything you wanted if someone could remember your URL. As a resource for accurate information, it slowly became useless. One of the most onerous examples of an epic fail are all the public phone records sites that existed. Nearly every local phone company started a variety of phone lookup services. This was some sort of public benefit and supplanted the yellow pages and local phone directories that were becoming useless as people moved to unlisted mobile phones.

But there were times you wanted to find someone’s number and call them. You’d use these services to find their number. Over the last few years, all these free services have been cajoled into contracting with paid services. Now when you want a phone number you can only get it if you subscribe for a day or a month to one of the various “finding” services.

The early idealism of open directories faded quickly into a borderline e-commerce scam. This is the state of things. The idea that “you can find anything on the Internet” changed to “you can find anything on the internet for a fee and we can’t guarantee any accuracy whatsoever.”

This is not going to get any better, either. This battle appears lost.

[john\\_dvorak@pcmag.com](mailto:john_dvorak@pcmag.com)



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